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Page 3:

TASKS AND MISSIONS, AND DIRECTIONAL ORGANIZATION AND METHODSBASIC MISSIONS

1. To prepare and train well-disciplined and well-drilled soldiers for the services of the rear, men who are possessed of physical endurance and are unconditionally devoted to the interests of the Party of Lenin-Stalin and of the Soviet Government.
2. To provide, for the soldiers of the services of the rear, the requisite knowledge and practical experience in their various specialties, to teach them unrelentingly to preserve the technical materiel and material, to have a thorough knowledge of the rules for its use and for keeping it constantly in readiness for use.
3. To teach the soldier to have complete mastery of his own weapon and its technique, so that he will be able to use it skillfully in combat and also for the protection of military property.
4. To train the individual units of the rear services in such manner that they will be able expertly to carry out their missions in providing technical materiel and equipment as well as supplies for the maintenance of personnel.

DIRECTIVES PERTAINING TO ORGANIZATION

5. The program set forth in these pages is designed to prepare the soldiers of the services of the rear for the below-mentioned specialties, which are of interest to all large and minor units of the Ground Forces:

- general assembly mechanic; and assembly unit specialist (for tank forces);
- electricians and battery specialists;
- machine-tool lathe hand;
- general assembly mechanics and assembly units specialists (automobile);
- electric and gas welder;
- vulcanizer;
- store-room hand for tank and automobile materiel; ^{military} or engineer
- store-room hand for ordnance property; (general ordnance equipment)
- store-room hand for ordnance property: (artillery and ammunition)
- store-room hand for fuel and lubricant supplies;
- store-room hand for food supplies;
- store-room hand for (baggage train) clothing and personal equipment;

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- medical aid men and orderlies;
- cooks;
- bakers;
- tailors;
- shoemakers;
- farriers;
- supply train (horse-drawn, pack-borne) personnel;
- clerks;
- supply sergeants.

Soldiers assigned to specialties for which a very large number of men is available are not included under any special program, but must be trained under the natural capabilities program.

6. The program is built up on the basis of 10.5 months of training (inclusive of one-half month allowed for transfer to the various camps) for each man in the services of the rear. The training year is divided into two training periods: the winter period (5 months) and the summer period (5.5 months).

MISSION FOR THE WINTER PERIOD: For the new recruit -- uniform basic training with the line units and specialist training for soldiers of the services of the rear. For reenlisted personnel -- improvement in specialist knowledge and capabilities. In addition, the formation of service units of the smaller type is also pursued during the winter training period.

The winter period of training is divided into three parts:

FIRST STAGE: 1.5 months (36 training days) basic training for new recruits, carried on in line units in the usual manner. New recruits cannot be assigned to the services of the rear without having first completed this stage of the training.

SECOND STAGE: 1.5 months (36 training days) specialist training for soldiers who are to be assigned to the services of the rear.

THIRD STAGE: 2 months -- formation of the minor types of service units. During this stage the training for new recruits and reenlisted men proceeds jointly.

MISSION FOR THE SUMMER PERIOD: improvement of knowledge and capabilities for all soldiers of the services of the rear, and training for service units.

This period is divided into three stages as prescribed by the program as training for units, on the regimental or separate battalion level, of the various ^{arms and services} ~~types~~.

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7. The specialist training for soldiers of the services of the rear as conducted during the second stage of the winter training period is carried on the basis of a muster organized by the commanding officer of one of the large units. This muster is conducted at one and the same time for all specialists of the services of the rear and is planned in such manner that it begins not later than ~~the~~ 10-15 days after completion of the first stage of the winter training period.

The duration of this muster is 1.5 months (36 training days, inclusive of 6 short days). The number of training hours per day of training is 8 ordinarily, with two hours less preceding each day off.

During the time of this muster the soldiers are excused from guard and fatigue duties.

8. The muster is organized by the commander of the large unit at those service units (and subordinate units) which offer the best opportunities for successfully training the soldier in his specialty (have sufficiently large cadres already trained, training facilities, adequate material and operating facilities). Thus the muster of auto-mechanics is suitably conducted at the automobile repair shop of the large unit, the muster of shoemakers and tailors at the large unit's clothing supply shop, the muster of store-room hands at the corresponding type of storage depot, the muster of medical personnel at the medical unit, and so forth.

The commanding officer of the large unit will assign men from other elements of the large unit in so far as they may be needed for training soldiers of the services of the rear in their respective specialties.

9. The reenlisted men and new recruits are given an opportunity to perfect their specialist knowledge and capabilities in the course of their daily practical work (duty in shops, ~~ware~~ rooms, offices, receiving wards, etc.).

Organization of the service units and subordinate units proceeds in the course of tactical and headquarters-staff instruction, but also in the course of the special training for services of the rear.

All soldiers of the services of the rear, and all of the service units, are brought in for the tactical and headquarters-staff instruction.

So far as they are conducted for the companies and battalions, these training exercises are participated in by all soldiers whose regular duties in the ~~services~~ ^{SERVICE}

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of the rear are with a battalion or with a company, respectively. The commanders of the intermediate units (e.g. regiment or separate battalion) make assignments, according to the training purpose of the exercise, to the company and battalion tactical exercises for subordinate service units, establishing a systematic procedure for this purpose.

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10. In those instances where improvement of the specialist knowledge and capabilities of a recruited soldier of the services of the rear cannot be accomplished in the process of their daily operational duties, the commanding officer of the large unit will issue an order to have short-term masters established according to the various specialities required, for calls that do not involve in excess of 15 training days per year.

11. The time devoted to military and political training for the soldiers of the services of the rear is as follows:

FOR NEW RECRUITS:

-- during the first stage of the winter training period -- 276 hours (at the rate of 18 hours per month);

-- during the second stage of the same period -- 81 hours (at the rate of 5 1/2 hours per month);

-- during the third stage of the winter training period and throughout the summer training period -- 266 hours (at the rate of 38 hours per month);

FOR RECRUITED SOLDIERS:

-- throughout the entire training year (10.5 months) -- 380 hours (at the rate of 36 hours per month).

Study groups for exercises in military and political training for soldiers of the services of the rear (other than soldiers of the services of the rear of the line units) are organized by the commanders of the intermediate units (e.g. regiment or separate battalion).

The men who are performing regular duty with the services of the rear in the subordinate units of the line are given military and political training each at his own unit.

12. The training topics for new recruits are the same for every type of specialist:

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during the second stage, during the period of the specialist muster; during the remaining stages, at the various minor units themselves (in the training groups), jointly with the reenlisted soldiers.

13. A check on progress in each one of the training subjects is made:

-- by the platoon commander (company or battalion commander) on the progress made by each individual soldier;

-- by the regiment's (separate battalion's, etc.) deputy commander for supplies or chief of the service on the progress of each one of ~~his~~ his service units.

14. "Park" days in the minor service units are conducted, as a general rule, at the rate of 4 days per month.

15. In conformity with Point 8 of Directives Pertaining to Organization of the Program of Technical Training ~~for~~ of the Rifle Regiment of the Ground Forces to perfect the knowledge and practical capabilities of military chauffeurs (and tractor drivers).

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the ~~the~~ was presented in these pages includes technical training for the drivers of motor vehicles.

The courses of technical training are ~~organized~~ conducted in platoon groups or organized for this purpose by order of the commanding officer of the "chast'" (regiment, separate battalion, etc.), i.e. no "intermediate units."

GENERAL DIRECTIVES PERTAINING TO METHOD

16. The text-books to be used as basic texts in teaching the soldiers of the services of the rear include the following: the Field Manuals of the different arms and services, the Drill Manual (Stroyevoy Ustav), the ~~Regulations on the Organization of the Garrison Duty and Interior Guard Duty~~ Unit Interior Economy Regulations (Ustav Vnutrenney Sluzhby), the Code of Disciplinary Punishments (Disciplinarynyy Ustav), the Garrison Duty and Interior Guard Duty Regulations (Ustav Garnizonnoy i Karaulnoy Sluzhby), instructions and manuals concerning repairs and maintenance, operation of materiel, and so forth.

17. The training provided for the soldiers must proceed in consecutive order, advancing from simple and easy matters to the complex and difficult matters.

18. The basic principle to applied in the training is as follows: a practical demonstration accompanied by brief explanation by the commander; imitation, by the soldiers themselves, of the method (process) that was demonstrated to them; check on correct

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performance; and to train the soldier until he has fully mastered the method or process in question.

19. Every theoretical topic must be made clear with the use of visual aids (diagrams, posters, tabulations, mock-ups, training films, exhibits, etc.) until each soldier has fully assimilated the problem under consideration.

20. When the instruction has to do with questions of book-keeping, accounting, reception and issue of property, maintenance of property, and the like, one must develop a sense of honesty and a protective attitude toward national property. In addition to achieving expertness in the work of carrying into effect the commanders' instructions and correctly preparing the requisite documents.

21. Whenever the instruction has to do with one of the many aspects of war material, the instructor must emphasize the leading part played by Comrade Stalin, by the Communist Party, and the contribution made by Soviet scientists, engineers, inventors, and the leading Stakhanovites, in creating and perfecting, first-class material for their country, in organizing the processes of production, and making its possible to increase the productiveness of labor and to achieve high quality of the output.

22. Political instruction is given at the rate of 4 hours per week (two lessons of 20 minutes each). 10 minutes of the training time, on days when no other political

instruction is given, will be devoted to political information.
Part 1 of Table, Translation p. 7.

Part 2 of Table, Translation p. 8.

TABLE SHOWING THE NUMBER OF HOURS FOR TRAINING YEAR ACCORDING TO THE COURSE OF INSTRUCTION									
Subject of Instruction	1st STAGE New Recruits	2nd STAGE Reenlisted Soldiers	3rd STAGE New Recruits	4th STAGE Reenlisted Soldiers	5th STAGE All Soldiers of the Rear Services	6th STAGE 1st STAGE	7th STAGE 2nd STAGE	8th STAGE 3rd STAGE	9th STAGE 4th STAGE
1. Political Training	33	33	33	33	33	34	32	44	44
2. Tactical Training	2	2	2	2	2	4	6	6	6
3. Participat. in Lge. Unit Tact. Exerc.	2	7	5	10	10	28*	50*	132*	132*
4. Repetition Marksmanship Training	3	6	3	6	6	3	3	5	5
5. Drill Exercises	4	6	4	4	4	2	4	4	4
6. Physical Training	2	4	2	4	4	2	4	4	4
7. Manuals and Regulations	1	1	1	1	1	3	3	8	8
8. Combat Engineer Training	1	1	1	1	1	1	1	1	1
9. Chemical Warfare Training	1	1	1	1	1	1	1	1	1
10. Military Topography	3	15	10	10	10	1	1	1	1
11. Automobile Training	1	1	1	1	1	3	3	1	1
12. Specialist (Technical) Training ..	1	1	1	1	1	1	1	1	1
13. Medical Training	6	6	6	6	6	1	1	1	1
14. Fire Protection Training	1	1	1	1	1	1	1	1	1
15. Time kept in Reserve	1	1	1	1	1	1	1	1	1
TOTAL	57	81	73	82	85	107	107	208	208

* This time is used to have the men and the small service units participate in large-unit tactical exercises. The commanding officers of the intermediate units (regiment, etc.) which come of the service units will be included, and for what subjects, in the company and battalion exercises. All aside from the hours shown in this Table, the various small service units will be called in to participate in headquarters-staff and services-of-the-rear exercises.

** A separate Table is provided to show the number of hours devoted to the various specializations.

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TABLE SHOWING HOURS OF SPECIALIST TRAINING FOR SOLDIERS OF THE SERVICES OF THE REAR DURING THE 'RUSTER PERIOD, DURING THE SECOND STAGE OF THE WINTER TRAINING PERIOD

SECOND STAGE OF THE MILITARY TRAINING COURSE						
Subject of Instruction	(Tank) Gen. Assembly (etc) Electr. & Batt. Spec. Mach. Tool Lathe Hd. Engineer (Automobile) Gen. Assembly Mech. etc. & Lubricants. Electro-Gas Welder Vulcanizer	Store-Room Hands; Tank & Auto; Gen. Ordn. & Equipm.; Art. Equipment. Materiel & Ammun.; Fuel Cooks; Bakers; Clerks; Supply Sergeants.	Store-Room Hands; Food; Cloth. & Person. Farriers.	Medical Personnel; Tailors; Shoemakers.	Supply Train (Horse-Drawn, Pack- Borne) Personnel	
1. Specialist Training	175	175	165	170	165	160
2. Reserve Time	20	20	30	25	30	35
TOTAL	195	195	195	195	195	195

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Page 10:PROGRAM FOR MILITARY TRAININGSUBJECTS OF INSTRUCTION REQUIRED FOR ALL SPECIALISTSPOLITICAL TRAINING

This training is conducted in conformity with directives issued by the Chief of Political Administration (^y ~~Glavnoe~~ ^{koye} Politicheskoye Upravleniye) of the Soviet Army.

TACTICAL TRAINING

Purpose of Training. To perfect habits that will enable the soldier to conduct himself to best advantage on the field of battle, independently and as member of a squad (group).

DIRECTIVES AS TO METHOD

The subjects of tactical training assigned in common to the soldiers of all service units and specialties must be mastered by means of tactical drill exercises performed by them as members of a squad (~~xxx~~ ^{combat} crew, etc.). As to the rest, the conduct of the exercises will be governed by the directives (as to method) contained in the general training programs of the respective arms and services.

List of Subjects and Time spent on each.

Designation of Subjects	Number of Hours	
	Winter Period	Summer Period
1. The Soldier in Defensive Combat Action	--	4
2. Guard and Sentry Post Duty	2*	---
3. The Squad in Offensive Combat Action .	8	---
4. The Squad in Defensive Combat Action .	--	6
TOTAL:	10	10

* The new recruits are trained in special assemblies, ~~xxx~~ others, until the regular joint training begins.

Page 11:Subject 1. THE SOLDIER IN DEFENSIVE COMBAT ACTION

Exercise 1. Preparations for defense. Choice and fitting up of places for firing. Preparations for conducting fire.

Exercise 2. Repelling an enemy attack. Actions while artillery and mortar shelling

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is in progress. Activities when the combat alarm is given. Conducting fire, by direction of the commander or independently. Annihilation of attacking enemy tanks and infantry. Cooperation with neighboring troops. Annihilation of enemy troops entering the fire trench or communicating trench.

Subject 2. GUARD AND SENTRY POST DUTY

Guard post duties. Advancing a sentry post and finding a location for it. ^(Observation) Actions of the sentry upon appearance of an individual enemy soldier or upon the approach of a group. Relieving sentries.

Subject 3. THE SQUAD IN OFFENSIVE COMBAT ACTION

Exercise 1. Actions of the squad during an attack. Occupying and fitting up the jump-off position. Making ready for the attack. The attack itself. Annihilation of enemy personnel during the attack. Exploitation of favorable conditions for a determined advance. Repulsing a counter-attack made by the enemy.

Exercise 2. The squad's combat action in the depth of the enemy defense position. Attacks made in the depth of the enemy position. Coordination of fire and movement. Overcoming mine fields and other obstacles. Sudden attack and annihilation of the various individual nests of enemy resistance. Repulsing counter-attacks.

Subject 4. THE SQUAD IN DEFENSIVE COMBAT ACTION

Exercise 1. Organizing the defense. The squad's position. Clearing the field of view and the field of fire. Organizing fire and fire liaison with neighboring troops. Digging a trench. Maintaining field service during defensive action.

Exercise 2. Repelling an enemy advance or attack. Observation of the battle field. The squad's actions under artillery fire, and in the event of an air attack or chemical attack by the enemy. Repelling reconnaissance activities, and annihilation of attacking enemy tanks and infantry. Combat against enemy personnel making an irruption into the firing trench or communication trench.

Page 12:MARKSMANSHIP TRAINING

Purpose of Training. To perfect habits that will enable the soldier to conduct carbine fire at measured distances.

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List of Subjects and Time spent on each.

Designation of Subjects	Number of Hours	
	Winter Period	Summer Period
1. Construction of the Carbine	4	2
2. Methods and Rules applicable to Carbine Fire	9	8
3. Throwing Hand Grenades	4	--
TOTAL:	17	10

REMARK:

Exercise 1 (two hours) on Subject 1 and Exercises 1 and 2 (5 hours) on Subject 2 are conducted during the winter period:

- new recruits, in special assemblies;
- others, until the regular joint training begins.

Subject 1. CONSTRUCTION OF THE CARBINE

Exercise 1. Terminology and structure of the parts of the carbine. Commonly causes of delay in firing, and their elimination.

Exercise 2. Disassembling and assembling the carbine. Method for daily inspection of the soldier's carbine.

Subject 2. METHODS AND RULES APPLICABLE TO CARBINE FIRE

Exercise 1. Preparation for fire from prone position, using the support. Loading; aiming devices; taking aim; firing; unloading the carbine.

Exercise 2. Preparation for fire from prone position without using the support; and firing upon single open targets with time limit.

Exercise 3. Fire with sharp ammunition.

Subject 3. THROWING HAND GRENADES

Exercise 1. Position of the parts and mechanisms of the grenade before it is armed, and their function while the grenade is being armed and thrown.

Exercise 2. Preparation for throwing the grenade; and throwing the grenade with accurate aim from fixed position.

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DRILL FORMATION TRAININGPurpose of Training.

To develop soldierly bearing in the individual, and solidarity of action in the various squad formations.

List of Subjects and Time spent on each.MCS FORM
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List of Subjects and Time spent on each.

Designation of Subjects	Number of Hours	
	Winter Period	Summer Period
1. Drill Movements and Walk without Weapon	3*	3
2. Drill Movements and Walk with Weapon ..	3*	3
3. Movement in Bounds and Creeping	---	2
4. Squad Formations.....	4	4
5. Movements by Automobile	2	---
TOTAL:	12	12

Subject 1. DRILL MOVEMENTS AND WALK WITHOUT WEAPON

Exercise 1. Drill position of the soldier. Execution of the commands: *Fall In,*
Atten-^{As you Were}tion, At Hand, Fall Out, (Right, or Left) Dress. Turns in place. Salute in place.

Exercise 2. Drill step and parade step. Movement at a walk and running. Changing speed of movement. ~~Halting~~ Coming to a halt.

Exercise 3. Turns in motion.

Exercise 4. Salute in motion. Approaching and leaving a superior officer.

Drill Manual pp. 19, 22, 31-47, 59-74.

Subject 2. DRILL MOVEMENTS AND WALK WITH WEAPON

Exercise 1. Drill position of the soldier with weapon. Manual of arms in Arms Order, Arms, Arms. Execution of the commands: Sling ~~Back~~, Shoulder Arms, ~~March~~ and

The command for slinging the rifle across the back.

Exercise 2: Turns and movement with the weapon. Movement at a walk and running. Coming to a halt.

Exercise 3: Manual of arms while in motion. Execution of the commands: Shoulder Arms; Order, Arms.

Exercise 4: Saluting with weapon, in place and in motion. Approaching and leaving a superior officer, while carrying the weapon.

Drill Manual: pp. 48-68, 75-83.

Subject 3. METHOD OF MOVING IN BOUNDS, AND CREEPING

Execution of the commands: Down, and Up. Advancing in bounds and creeping, with weapon.

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13Page 11: (cont'd)Drill Manual: pp. 84-91.Subject 4. SQUAD FORMATION

Exercise 1. Deployed formations of the squad: single-rank formation and double-rank formation. Forming a squad and drawing it up in line. Execution of the commands: Attention, At Ease, (Right, Left) Dress, Dismissed. Turning movements of the squad.

Exercise 2. Movements of the squad in deployed formation and changes of the direction of movement. Reforming the squad from one rank into two, and vice versa. Checking rifles. Execution of the commands: Stack Rifles and Take Arms.

Exercise 3. The squad in marching formation. Changing the squad from a column into deployed formation, and vice versa; changing the squad from single file into a column of two's, and vice versa; changing the direction of movement in column formation.

Exercise 4. Deploying the squad as skirmishers. Movement of the squad in column as skirmishers. Moving into attack.

Drill Manual: pp. 92-127.Subject 5. MOVEMENT ON MOTOR VEHICLES

Forming into formation prior to boarding the vehicle. Checking on weapons. Boarding and taking places aboard the vehicle. Behavior en route. Signals of command, and methods of passing them on. Duties of vehicle personnel and officers or sergeants. Disembarking from the vehicle. Actions in the event of a sudden attack by the enemy.

Drill Manual: pp. 274-298.

REMARK: Transport units do not study Subject 5.

Page 12PHYSICAL TRAINING

Purpose of Training: To improve the soldier's physical condition and to develop skill in performing exercises with gymnasium equipment.

List of Subjects and Time spent on each.

Designation of Subject	Number of Hours	
	Winter period	Summer Period
1. Gymnastic Exercises:		
a) Group One	12*	--
b) Group Two	--	19
TOTAL:	12	10

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Exercises 1-8 (8 hours) are taken up: with the new recruits, in special assemblies; with others, until the beginning of the joint training.

Subject 1. GYMNASTIC EXERCISES
load:

- 1) First Group. Exercise with weights
Two men carrying a third.
- Exercise 1. Horizontal bar -- pull-up. ~~Horizontal bar -- pull-up. Buck, vault-~~
Buck (height 105-110 cm.) -- jumping on one's knees, and jumping forward.
Parallel Bars:
- Exercise 2. Climbing a rope (pole), using the legs. Flexing and unflexing the
Horizontal beam, (height 130-150 cm.) the
man, while supporting one's weight. ~~Horizontal beam, (height 130-150 cm.) the~~
man, while supporting one's weight. ~~Horizontal beam, (height 130-150 cm.) the~~
(with weights?)
- Exercise 3. Horizontal bar -- "pod"en satesom" (pull-up ?). Vaulting horse (height
100 cm.) -- jump with legs spread. Acrobatics -- backward turn, with help.
- Exercise 4. Climbing the tilted ladder. Parallel bars -- swinging on the support.
Horizontal beam (height 130-150 m.) -- Walking backward and sideways.
- Exercise 5. Horizontal bar -- Hanging backwards. Exercise with load: raising a
weight (weight). Acrobatics -- Roll, forward and backward.
- Exercise 6. Climbing the slanted rope. Parallel bars -- Raising oneself into
a sitting position with the back kept straight. Distance-jumping and high-jumping
in a running start.
- Exercise 7. Horizontal Bar -- swinging. Horizontal beam (height 130-150 cm.) --
swinging with additional movements of the hands and legs. Acrobatics -- double
roll.

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- Exercise 8. Horizontal Bar -- Hanging backwards. Parallel bars -- Lifting oneself
with a turn, with arm between the bars. Jump into the depth (height 2.5 m.).
- 1) Second Group. ~~Horizontal bar~~
- Exercise 1. Horizontal Bar -- Back Flip on the bar. Parallel bars -- forward
roll doubled up. Buck broadwise (height 125 cm.) -- jump with knees drawn up.
- Exercise 2. Climbing the rope (pole) -- using the hands only. Parallel bars --
bending and straightening arms while swinging. Buck (height 125 cm.) -- jump
sidewise.
- Exercise 3. Horizontal bar -- hanging suspended from the knees. Exercise with

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Loads: carrying a man. Buck sidewise (height 125 cm.) -- jump with legs spread.

Exercise 4. Hoisting with turn. Parallel bars -- Hoisting with backward swing.

Exercise with load -- raising a man from the ground.

Exercise 5. Horizontal bar -- Forward turn hanging. Parallel bars -- jumping
on from the end, legs spread. ~~From~~ Back lengthwise (height 120 cm.) -- jump with
legs spread (from the third group).

Physical Training Manual: pp. 67-77, 81-90.

MANUALS AND REGULATIONS

Topic of Training. To improve the soldier's knowledge and practical habits:

- in carrying out precisely the requirements of the Regulations; and
- in performing the company duty in exemplary manner and performing their
company duty.

List of Subjects and Time spent on each.

Designation of Subject	Number of Hours Winter Period
<u>Winter Period:</u>	
<u>Code of Disciplinary Punishment:</u>	
1. Rules and Incentives	2*
<u>Interior Service Regulations:</u>	
2. Military Personnel and Cooperation	2*
3. The Drill Detail Duties and those of the Orderly	4
<u>Summer Period:</u>	
<u>Manual on Garrison and Guard duty:</u>	
4. The Rights and Duties of Guard Personnel	4
TOTAL: 12	

THE CODE OF DISCIPLINARY PUNISHMENT

SUBJECT 1: DISCIPLINARY PENALTIES AND INCENTIVES

Exercise 1. Disciplinary penalties imposed upon private soldiers. The rights
of the commanders (from squad commander up through regimental commander) to impose
disciplinary penalties. The methods of carrying disciplinary penalties into effect.

* With the new recruits the subjects are taken up during the special
assembly, and with the reenlisted men up to the period of joint training.

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Incentives provided for the enlisted man(private). The rights
Exercise 2: ~~The procedure for receiving and executing orders.~~

of commanders to make use of these incentives.

Code of Disciplinary Punishment: pp. 8-11, 13, 15, 18-20, 23; 26-32, 52-53,
 59-73, 75-78.

INTERIOR SERVICE REGULATIONS

SUBJECT 2: MEMBERS OF THE MILITARY PERSONNEL AND COOPERATION BETWEEN THEM

Exercise 1. General duties of military personnel. Duties of the enlisted man.
 Military ranks and grades and the corresponding insignia. Superior and subordinate,
 senior and junior.

Exercise 2. The procedure of receiving and executing orders. Methods of
 reporting. Military courtesy and rules for the conduct of military personnel.

Interior Service Regulations: pp. 1-33, 41-45, 153-155.

SUBJECT 3: THE DAILY DETAIL DUTIES AND THOSE OF THE ORDERLY

Daily detail duties, what they comprise, who is designated for them, and who is
 in charge. Distributing the daily details. Duties of the orderly.

Interior Service Regulations: pp. 228, 230-233, 252-254, 275-277, 300-323, 330-332.

333-334.

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GARRISON AND INTERIOR GUARD DUTY REGULATIONS

SUBJECT 4: RIGHTS AND DUTIES OF GUARDS AND SENTRIES

The sentry. Tenacity of the sentry. Duties of the sentry. Occasions for the
 The sentry's special duties. Duties of prisoner escorts
 sentry to use his weapon,
 and prisoners.

Garrison and Interior Guard Duty Regulations: pp. 165-189.

COMBAT ENGINEER TRAINING

Purpose of Training. To teach the soldier how to construct and equip protective
 cover for personnel and materiel.

List of Subjects and Time spent on each.

Designation of Subject	Number of Hours	
	Winter Period	Summer Period

Summer Period:

1. Construction of Cover for Personnel	--	4
2. Construction of Cover for Materiel	--	4

TOTAL:	--	8
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SUBJECT 1: CONSTRUCTION OF COVER FOR PERSONNEL

Exercise 1. Special trenches (gorges) and stone parapets; their functions, principal dimensions, excavation, and fitting out with sanitary and technical installations. Construction of overhead covering and camouflage.

Exercise 2. Building shacks with improvised materials, fitting them out, and camouflaging them. Familiarity with the construction and fitting out of dugouts.

SUBJECT 2: CONSTRUCTION OF COVER FOR MATERIEL

Exercise 1. Use of ~~improvised~~ stone-rooms to provide shelter for kit-objects on the terrain and of ~~improvised~~ of) chens, bakeries, store-rooms, shops. Providing camouflage with the aid/improvised material and regular, issued camouflage property.

Exercise 2. Fitting and construction of special trenches (gorges) and stone parapets and field sheds for materiel.

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CHEMICAL WARFARE TRAINING

Purpose of Training. 1. To teach the use of the individual's own equipment for antipersonnel defense and decontamination.

2. To familiarize the soldier with methods of treating personnel and of decontaminating personnel equipment, weapons, and other materiel.

List of Subjects and Time spent on each.

Designation of Subject	Number of Hours
1. Means for Chemical Protection of the Skin	1
2. Exercises in Contaminated Air (Chamber)	2
3. Treating Personnel, and Decontaminating Personal Equipment, weapons, and other materiel	3
TOTAL:	6

SUBJECT 1: THE MEANS FOR CHEMICAL PROTECTION OF THE SKIN

individual pro-
Use of the ~~improvised~~ protective cape, poncho (?) (nakidka-podstilka), protective foot-wear, protective cloak (plashch), protective apron, protective robe (khalat) and the purposes for which they are intended. Purpose and use of the protective combinations and of the light-weight protective suit.

SUBJECT 2: EXERCISES IN CONTAMINATED AIR (CHAMBER)

Exercises: Checking the gas mask and determining that it is in order. Putting

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on the gas mask in contaminated air. Using a damaged gas mask and replacing it in contaminated air.

SUBJECT 3: TREATING PERSONNEL AND DECONTAMINATING PERSONAL EQUIPMENT, WEAPONS, AND OTHER MATERIEL.

Exercise 1. Use and contents of the individual gas casualty first-aid kit, and advice for using it. Practical methods for treating personnel and for decontaminating personal equipment with the aid of the individual gas casualty first-aid kit.

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Exercise 2. Understanding of the methods of preliminary, and complete decontamination of the weapon and of other combat materiel. Construction of equipment for the decontamination of machine guns and mortars, and the use of such equipment. The preliminary and also the complete decontamination of weapons and combat materiel of this type.

MILITARY TOPOGRAPHY

Purpose of Training. To develop the soldier's skill in orienting himself on the terrain; to perform movements according to a given azimuth; to make use of a small scale map (integrated).

Designation of Subjects and Time spent on each.

Designation of Subject	Number of Hours
Summer Period:	
1. Orientation on the Terrain and Movements according to a given Azimuth	4
2. Scale of the Map, Measurement of Distances, and Reading Maps	4
TOTAL:	8
SUBJECT 1: ORIENTATION ON THE TERRAIN AND MOVEMENTS ACCORDING TO A GIVEN AZIMUTH	
<u>Exercise 1.</u> Basic Orientation on the terrain according to landmarks and cardinal points of the compass. Use of landmarks in determining one's own position, maintaining a given direction, and finding one's way back. The compass and its structure; determining the cardinal points with the aid of the compass.	
<u>Exercise 2.</u> Determining the cardinal points from the sun and by various other means. Determining the azimuth on the terrain, and directions according to a given azimuth. Movement according to a given azimuth.	

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**SUBJECT 2: SCALE OF THE MAP, MEASUREMENT OF DISTANCES, AND
READING MAPS**

Exercise 1. Understanding of the numerical map scale. The linear scale, and method of using it. Measuring distances on the map, with the aid of compasses, scale indicator lines, improvised means, and by visual estimate.

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Exercise 2. Conventional symbols, and numerical designations, on maps. Reading the conventional symbols. Orienting the map.

MOTOR VEHICLE TRAINING

Purpose of Training. To familiarize the soldier with the general structure of the automobile, with fuels and lubricants, and with the rules for servicing an automobile.

List of Subjects and Time spent on each

Designation of Subject	Number of Hours
Winter Period:	
1. General Structure of the Automobile	4
2. Use of Materials	2
3. Park Service and Servicing of Automobile	9
TOTAL:	15

Remarks: For new recruits all of the subjects are taught during the special winter assembly, for the others, up till the beginning of the spring training.

SUBJECT 1. GENERAL STRUCTURE OF THE AUTOMOBILE *

Exercise 1. The automobile and its uses. Classification of types of motor vehicles, according to their regular assigned function, and according to their roadability. Short technical description of the automobile. Function, location, and attachment of the various individual assemblies, mechanisms, and devices of the automobile.

Exercise 2. General structure of the motor, the transmission, the wheel assembly, and the control mechanisms.

SUBJECT 2. USE OF MATERIALS

* The motor-transport and motor-repair units use the time allotted to Motor Vehicle Training to perfect their knowledge in specialties on the subject, according to the judgment of the commanding officer of the unit.

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Fuels, lubricants, and cooling liquids. The simplest methods for determining the quality of the gasoline and oil. Methods of handling gasoline, oil, and anti-freeze mixtures. Rules for fueling an automobile.

Page 22:SUBJECT 3. PARK SERVICE AND SERVICING AN AUTOMOBILE

Exercise 1. Motor vehicle parks. Purpose of the parks, and problems that arise in connection with them. Types of parks. Basic features of a park.

Exercise 2. Rules for the internal arrangement of parks. Fire fighting equipment in the parks, and rules for using it to put out fires.

Exercise 3. Rules for distributing and placing motor vehicles in permanent parks and field parks. Rules for admission to the park and to motor vehicles in the park. Rules for driving vehicles into and out of the park and for putting them into their parking space.

Exercise 4. Scope of the work in servicing an automobile. Types and time intervals of servicing. Inspection of vehicle before it leaves the park (during halts and at stopping points). Daily technical servicing.

MEDICAL TRAININGPurpose of Training.

To acquaint the soldier with basic rules of prophylaxis against contagious diseases and to teach him practical first aid methods to be applied to wounded men and gas casualties on the battle field.

List of Subjects and Time spent on each

Number of Hours

Summer Period:

- | | |
|---|---|
| 1. Prophylaxis against acute diseases of the gastro-intestinal tract | 1 |
| 2. Prophylaxis against parasitic typhoid diseases | 1 |
| 3. First aid to wounded men on the battle field | 1 |
| 4. Self-help and mutual assistance in cases of contamination with toxical combat agents | 1 |

TOTAL:

4

SUBJECT 1: ~~Prophylaxis against acute diseases of the~~
PROPHYLAXIS AGAINST ACUTE DISEASES OF THE
GASTO-INTESTINAL TRACT

Dysentery, abdominal typhus, cholera. Basic symptoms, exciting causes,

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sources of infection, methods of spreading the disease, and prophylaxis against these diseases.

SUBJECT 2.: PROPHYLAXIS AGAINST PARASITIC TYPHOID DISEASES

Enteric typhus and recurrent typhus, basic symptoms, exciting causes, sources of infection, methods of spreading the disease, and prophylaxis against these diseases.

SUBJECT 3: FIRST AID TO WOUNDED MEN ON THE FIELD OF BATTLE

Removing the wounded man to shelter. Giving first aid to the wounded on the field of battle. Rules for using the individual ~~medical~~ first aid kit. Putting on a bandage. First aid in cases of broken bone.

SUBJECT 4: SELF-HELP AND MUTUAL ASSISTANCE IN CASES OF CONTAMINATION WITH TOXICAL COMBAT AGENTS

Self-help and mutual assistance in cases of contamination with vesicant toxic agents. Rules for using the individual gas casualty first aid kit. Giving first aid to cases of contamination with suffocating gas and harassing agents.

FIRE PROTECTION TRAINING

Purpose of Training. To teach the soldier methods of fire prevention, measures to be taken when a fire is discovered, and methods of extinguishing it.

List of Subjects and Time spent on each

Designation of Subject	Number of Hours
Winter Period:	
1. General Methods of Fire Protection	2
2. ^{and} Methods of extinguishing Fires	2
3. Basic Rules of Fire Fighting	2
TOTAL: 6	

REMARK:

For new recruits all of these subjects are taught during the special, and for ~~the~~ others until the beginning of the joint training period.

Page 24:SUBJECT 1: GENERAL METHODS OF FIRE PROTECTION

Rules for fire protection in store-rooms and during the operation of motor vehicles. Measures of fire protection during the protection of soldiers in their quarters. The duties of men on daily details, in so far as fire prevention is concerned.

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SUBJECT 2: MEANS OF EXTINGUISHING FIRES

Fire extinguishers, their uses, construction, rules for charging and maintenance. How to operate fire extinguishers in use, and how to start them. The structure of hand-operated fire pumps and how to operate them in case of fire. The structure of indoor fire hydrants, the equipment for them, and how to operate this equipment in case of fire.

SUBJECT 3: BASIC RULES OF FIRE FIGHTING

The duties of military personnel when a fire is discovered. Basic rules for extinguishing fires in military barracks, store rooms for various types of property, fuel, ammunition, tanks, and motor vehicles.

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PROGRAM FOR SPECIALIST TRAINING**GENERAL ASSEMBLY MECHANIC AND ASSEMBLY-UNIT SPECIALIST FOR TANK FORCES**

Purpose of Training. 1. To explain the structure of combat vehicles, the functioning and malfunctioning of the various assemblies, rules for using and servicing the vehicles.

2. To teach repairs made on combat vehicles and their individual assemblies at stationary shops and under field conditions.

DIRECTIVES AS TO METHOD

The basic training in the specialty includes instruction in the structure of the vehicle and in practical work.

The instruction given in these subjects proceeds in the order as set forth in the program. In teaching the repair work, the student's attention is called especially to the development of habits of properly and intelligently keeping the place of work in order, and its tools and ~~machinery~~ ^{devices,} and also habits of carefully operating the repair machinery (the machine as a whole, its various assemblies and details) and other repair equipment.

Practical work in repairing vehicles, and their various assemblies and details, that require reconditioning.

To teach repairs, according to established technological rules and technical requirements and in accordance with time standards, on military vehicles and their

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individual assemblies and details; and at the same time also to incorporate the most recent improvements in the technological process of the repairs.

Page 26:List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Tanks and Self-Propelled Artillery Mountings of the Soviet Army	2
2. Structure of the Combat Tank	4
3. Structure, functioning, malfunctioning, and regulation of the individual mechanisms and assemblies of the tank	46
4. Information on the Subject of Electrical Engineering	4
5. Structure of the Tank's Electrical Equipment	6
6. Operating a Combat Tank	20
7. General Assembly Work (Smith's Shop)	16
8. Malfunctioning and Defects of Assemblies on Tanks ..	4
9. Basic Aspects of Organization and Technology of Military Repairs of Tanks	16
10. Materials used in Tank Repairs	14
11. Organizing the Work and the Place of Work	5
12. Receiving the Tank for Repairs	4
13. Rules for Disassembling and Assembling the Mechanisms	4
14. Replacing a Motor; Replacing and Repairing its System	12
15. Replacing and Repairing the Transmission Assembly....	8
16. Replacing Sections and Details of the Suspension and of the Wheel Assembly	4
17. Driving the tank around and testing it after replacement of details or minor assemblies	4
TOTAL:	175

SUBJECT 1: TANKS AND SELF-PROPELLED ARTILLERY MOUNTINGS OF THE SOVIET ARMY

Section 1: Classification of tanks and self-propelled artillery mountings according to weight, armament, mission. The role played by the Party and by Comrade Stalin in person in the creation of first-class Russian tank materiel. Brief account of the combat and technical properties of the Russian-made tanks and self-propelled artillery mountings.

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SUBJECT 2: STRUCTURE OF THE COMBAT TANK

Exercise 1. Basic parts of the tank. The structure of the armored part and its sections. Structure of the ports and observation devices, and rules for using them.

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Position and attachment of the various assemblies, mechanisms, supplementary equipment, measuring and control devices, and installations.

Exercise 2. Function and structure of the turret. Structure of the ball-bearing support, blocking devices, ports, and observation devices of the turret, and the rules for making use of them. Mountings and armor protection of the turret. Method of operating the revolving mechanism and servicing it.

SUBJECT 3: STRUCTURE, FUNCTIONING, MALFUNCTIONING, AND REGULATION OF THE INDIVIDUAL MECHANISMS AND ASSEMBLIES OF THE TANK

Exercise 1. Principles of functioning of the internal combustion motor. The basic mechanisms of the motor. Four-cycle and two-cycle processes. Notion concerning the power of the engine and the torsional moment. The dependence of power and torsional moment on the number of turns of the crankshaft, the degree of compression, and the moment of feeding the fuel or spark-advance. Notions concerning losses of fuel and mechanical losses. Advantages and disadvantages of the diesel engine as compared with the carburetor engine.

Exercise 2. Structure and functioning of the crankgear. Requirements arising in connection with the crankgear mechanism. Disorders of the mechanism and their elimination.

Exercise 3. Structure and functioning ^(of details) of the feeding and distribution mechanism. Phases of distribution. Method of functioning of the cylinders. Method of regulating valves and gasoline-distributing installations. Disorders, and methods of anticipating and removing them.

Exercise 4. Structure of the feed system. General information concerning fuel and the different types of fuel. Diagram of the feed system. Purpose, position, and attachment of assemblies and devices of the feed system. The functioning of the feed system.

Exercise 5. (Concerning tanks with diesel motors.) Purpose and technical properties of the fuel pump. Structure and functioning of the fuel pump and of the spray burner; rules for attaching them to the engine. Structure and functioning of the supercharger.

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(Concerning tanks with carburetor engines.) Purpose, structure, and functioning of the carburetor. Its regulation and installation on the engine.

Exercise 6. Structure and functioning of the fuel pump, filter, air-cooling system, tanks, stopcocks, fuel conduits, and measuring devices. Mechanisms for controlling the feed system, and regulation of these mechanisms. Rules for servicing the assemblies of the feed system. Irregularities, and their anticipation and elimination.

Exercise 7. Structure of the lubricating system. Notions concerning friction and the purpose of lubrication. Information concerning ~~fastener~~ lubricating oils used during the summer and during the winter, and concerning their substitutes. The lubrication diagram. Purpose, position, and attachment of assemblies and devices of the lubricating system. Pressures and temperatures required by the oil under different working conditions.

Exercise 8. Structure and functioning of the oil pump, oil-cooling assemblies, filters, and control devices. Tanks, stopcocks, and oil conduits. The oil-flow structure and rules for making use of it. Care of the lubricating system. Irregularities, and methods for discovering, anticipating, and removing them. Methods for changing oil or adding oil to the system.

Exercise 9. Structure of the cooling system. The need for cooling. Information concerning the cooling liquids used for cooling the engine. Precautionary measures for handling anti-freeze mixtures (the anti-freeze mixture is a poison). Purpose, position, and attachment of assemblies and devices of the cooling system, and their method of functioning. Incoming and out-going cooling air, and methods of controlling the flow of air. Temperatures of the cooling liquid required under different working conditions of the engine.

Exercise 10. Assemblies and devices for starting the motor. Purpose of the starter, and rules for using it. Structure and functioning of the system for starting the motor by compressed air. Ways of getting the motor started in the cold air of winter. Structure and functioning of the devices used for that purpose; the care of these devices, and rules for using them.

Exercise 11. Irregularities of the starter system, and ways of anticipating and removing them.

Exercise 12. Malfunctioning of the motor, the reasons therefore, and methods for discovering and removing them.

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Exercise 12. Purpose, structure, and functioning of the main friction clutch. Throwing in the main friction clutch. Method of taking out, disassembling, assembling, and replacing individual details of the main friction clutch. Rules for using the main friction clutch. Irregularities of the main friction clutch, their causes, and methods of discovering and removing them. Clutch adjustment: at the factory and in operation. Care of the main friction clutch.

Exercise 13. Purpose, structure, and functioning of the ~~transmission~~ gear shift. Ratio of transmission, changes of power of traction. Control gear of the gear shift

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and its attachment in the combat tank. Rules for using the gear shift.

Exercise 14. Irregularities of the gear shift, and their causes; ways of anticipating and eliminating them. Adjustment of the gear-shift controls. Care of the gear shift.

Exercise 15. ~~Braking and~~ ^{Reverse gear} brake mechanisms. Purpose, position, and structure and functioning of the ~~braking~~ ^{reverse gear} mechanism. Method of linking it with other assemblies of the tank structure. Purpose, position, and structure and functioning of the brakes, and rules for using them.

Purpose, position, and structure of the reverse-gear controls, and their functioning.

Exercise 16. Malfunctioning of the reverse gear mechanism; its causes; means of preventing and removing them. Adjusting the reverse gear mechanism, the brakes, and their controls, and the care of these mechanisms.

Exercise 17. The side drive. Purpose, position, attachment, structure, and functioning of the side drive. Malfunctioning, its causes, means of prevention and removal. Method of adjusting it. Method of replacing minor assemblies and details of the side drive, and the care of these mechanisms.

Exercise 18. Adjusting the control gear. Operational adjustment of the controls of the main friction gear, gear shift, and reverse-gear mechanism. Technical conditions for adjustment. Technological charts.

Exercise 19. The underframe. Purpose, position, and structure of the assemblies and details of the underframe. Attachment of the assemblies and details to the body of the vehicle. Method of replacing the various individual assemblies. Malfunctioning, its causes, methods of prevention and correction. Methods of adjustment, and

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and care of the underframe. Technical conditions for dismounting, mounting, and adjusting the minor assemblies of the underframe.

SUBJECT 4: INFORMATION ON THE SUBJECT OF ELECTRICAL ENGINEERING

Exercise 1. Static and dynamic electricity. Conductors and non-conductors. Two types of electricity. Potential and voltage. Electric capacity. Condensers and their structure. Notion concerning electric current. The strength of current. Electromotive force and voltage. Resistance. The electric circuit. Series connection and parallel connection of the consumers and sources of current. Units of measurement for intensity and force of current, and for resistance. Structure and operating principle of instruments for measurement and control, and rules for connecting them to a circuit.

Exercise 2. Work and power of the electric current. Heating devices. Safety devices. The electric arc. The magnet and its properties. The magnetic field. The magnetic field created along a conductor of current. The solenoid. Electromagnets. The magnetic circuit. Interaction between a magnetic field and a conductor of electricity. Induction of electromotive force in a conductor that is moving in a magnetic field. Induction of electromotive force by changing the magnetic current in the periphery. The phenomenon of self-induction. The principle of action of the induction coil.

SUBJECT 5: STRUCTURE OF THE TANK'S ELECTRICAL EQUIPMENT

Exercise 1. Position of the electric assemblies and devices of the tank's equipment. Sources of current: storage batteries, generator. Consumers of current: starter, motor for turning the turret, ventilator motor, radio sets, tank inter-com system, lights, current supply taps, sound signals, and electric ignition devices.

Exercise 2. Safeties, control devices, connection boxes, revolving contact structure. Switches and wiring system. Electric circuits: starter connections, current supply for starter, charges of the storage battery, current supply for the electric devices of the turrets, emergency lighting.

Exercise 3. The storage battery. General information concerning storage batteries. Types of battery. Structure and functioning of acid batteries and alkaline storage batteries. Chemical processes that take place in storage batteries. The charge and discharge diagram. Values of magnitude characteristic of starter bat-

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series: voltage, density of the electrolyte, capacity. Connecting storage batteries groups: parallel in ~~series~~ connection in series and ~~connection~~. Capacity of storage batteries and its relation to the charge and discharge current, the temperature, and the density of the electrolyte.

SUBJECT 6: OPERATING A COMBAT TANK

Exercise 1. Method of receiving a tank for repairs and discharging it from repairs. Rules for operating a combat tank. Time intervals between checks and repairs. Basic rules for technical servicing of tanks under various conditions, relating to purpose and nature of periodic inspections. Documents ~~showing~~ work done on tanks. Purpose and functioning of the work done by the technical control stations.

Exercise 2. Unit sets of instruments and accessories (ZIP) ^{carried by the tank}. Equipment and mechanisms for lubricating the assemblies and ~~checkers~~ of the tank. Storing the ZIP in the tank.

Exercise 3. Prolonging the tank's period of serviceability, and methods of preventing damage and breakdowns. The importance of prolonging the tank's period of serviceability. Measures to be taken during operation of the tank to prolong its period of serviceability. Maximum and minimum periods for operating a tank between repairs. Conditions that make it possible to operate a tank for a long period of time. Rules for operating a new tank.

Exercise 4. Fire-protection measures. Fire protection for the tank. Fire-fighting equipment carried by the tank. Rules for using and taking care of the fire-fighting equipment. Fire precautions to be observed in servicing and repairing a tank. Methods of extinguishing fire inside and outside the tank.

Exercise 5. Control inspection of tank. Purpose of the control inspection. Amount of time devoted to the control inspection. Nature and sequence of the work done in the course of a control inspection. Tools and accessories used for the control inspection. Practical methods for carrying out the control inspection.

Exercise 6. The daily servicing of the tank. Purpose of the daily servicing. The amount of time devoted to the daily servicing. Nature and sequence of the tasks of daily servicing. Practical methods for carrying out the tasks of the daily servicing.

Exercise 7. Purpose of, and time intervals between, the technical servings (No.

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2). The amount of time devoted to the technical servicing. Nature and sequence of the tasks performed in the course of the technical servicing. The tools, devices, and materials used. Practical methods for performing the tasks of technical servicing.

Exercise 8. Purpose of, and time intervals between, technical servicings No. 3. The amount of time devoted to these technical servicing. Nature and sequence of the tasks performed. Tools, devices, and materials used. Practical methods for carrying out the tasks of this servicing.

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Exercise 9. Preservation of the tank. The purpose of tank preservation. Nature and sequence of the tasks performed in preparing the tank and its assemblies for a long period of storage. Time intervals between treatments for dead storage. Rusting, etc. causes, and methods for preventing it and fighting against it.

SUBJECT 7: GENERAL ASSEMBLY WORK (SMITH'S SHOP)

The nature of this work is the same as that described under the heading of Subject 9, Exercises 1-7, 9-11 for general assembly mechanics and assembly unit specialists (automobile).

SUBJECT 8: MALFUNCTIONING AND DEFECTS OF ASSEMBLIES ON TANKS

(functional malfunctioning. Defects: structural; resulting from manufacturing processes, from ordinary wear and tear, and from accidental damage. Damage caused by human action. ~~REPAIRS~~)

SUBJECT 9: BASIC ASPECTS OF ORGANIZATION AND TECHNOLOGY OF MILITARY REPAIRS ON TANKS

Exercise 1. Repair systems: planned preventive, according to need, and mixed. The advantages and disadvantages of each system. The repair system adopted for the Soviet Army. The nomenclature for different types of repairs and interval periods. The nature of the work done in current, intermediate, and heavy repairs.

Exercise 2. Repair methods; individual, by assemblies, ^(made at random) special. The advantages and disadvantages of each method. Repairs with ready-made spare-parts, with specially made spare-parts, and mixed. Advantages and disadvantages of each method. Documentation concerning the vehicle sent out for repairs.

Exercise 3. Technology of military repairs of tanks. Inspection of tank to determine the scope of repairs needed, and the spare-parts and materials needed. Making out a damage report. Choice and preparation of tools and devices. Getting the place

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of work in readiness. The proper way of placing the tank (assembly) on the repair stand (protection from dust, rain, wind). Cleaning the mechanisms, draining oil, fuel, and water. Safe-practices.

Exercise 4. Sequence of tank repairs, and repairs on individual assemblies, armament, and optical devices. Diagram of the technological process. The procedure

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of obtaining spare-parts and materials. Documents to be made out in connection with repairs. Technical conditions for the repair work. Technological charts for the repairs on tanks.

Exercise 5. The technology of repairs, defects, and checking individual details. The characteristics of wear and defects of individual details. The manner in which wear and tear changes the dimensions of adjoining surfaces and destroys the proper geometrical shape of surfaces. Examples of admissible average wear for the most important details of a tank. Methods of repairing the details affected. Repairing details by the method of repair dimensions. The nature of this method. Method of measuring repair dimensions. Advantages and disadvantages of this method.

Exercise 6. Methods of determining the extent of wear and defects of details: external inspection, and instruments and devices for making control measurements. Technical conditions affecting the defects of details. Arranging details in groups: serviceable details; details in need of repair; and unserviceable details. Measurement control instruments and the technique of using them. Methods for measuring the thickness of the coars of pinion-gear, etc. Technical conditions and technological charts related to defects.

Exercise 7. Repairs of worn details by welding, chrome-plating, and metal-plating. The nature of these methods, and the extent to which they can be applied. ^{REPAIR} ~~REPAIR~~ of details with the aid of supplementary details. Repairs of details by the method of plastic deformation (depositing, shingling, distributing). Technical conditions related to the repairs of details.

Exercise 8. Repair ^{installations} ~~equipment~~ for the armored and mechanized troops of the Soviet Army (VRC, RTO, PTRB, repair bases 2nd class and 1st class, repair plants), their purpose and scope of work. Types of mobile repair shops; their installations, tools, and devices. Distribution of equipment in the shops, and storage of tools and devices. Tables of organization and equipment for the shops, and the scope of their work.

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SUBJECT 10: MATERIALS USED IN TANK REPAIRS

Exercise 1. Metals, alloys; their properties and treatment. Basic properties of the metals: physical, chemical, mechanical, and technological. The distinction between ferrous and non-ferrous metals. Comparison of the properties of cast iron and steel. Types of cast iron and their properties. Carbon and alloy steels. Notions concerning the methods of obtaining steel. Notions concerning methods of changing the properties of steel by addition of rare metals. Parts of the tank made of carbon steel, and those made of alloy steel. Tool steels. Brands of steel used in the making of armament.

Exercise 2. Non-ferrous metals. Basic properties of metals and alloys ^(ways of replacing non-ferrous materials.) and ^{4.024} basic properties. ^{4.024} Anti-friction alloys. Use of non-ferrous metals in tank construction and artillery. Using unserviceable parts as metal in making new parts.

Exercise 3. Basic methods of metal working. Notions about casting and the properties of metal casts. Principal methods of mechanical working of metals: hot and cold treatment. Notion concerning thermic and thermo-chemical treatment of metals.

Exercise 4. Purpose and procedure of the processes of ^(annealing, tempering, drawing, carburizing, carbonization, and nitroting.) Surface working of metals by using a high-frequency current. Special characteristics of thermic treatment of steel, and the conditions under which this work is done. Details of tanks and armament subject for thermic treatment. Practical methods for determining the qualities of metals.

Exercise 5. Supplementary materials. Purpose and basic properties of friction material (ferrado, paysbestos, asbolit), packing materials (carton, Klingerit (an asbestos rubber cement), asbestos, metal-asbestos and metallic padding, felting, seal, hermetic (presumably: a hermetic sealing material), ⁴genytical). The use of frictional materials and sealing materials in the tank and on the armament. Acids and alkaline substances; their properties and use in repairs. Solvents for carbon deposits and their uses. Obturating materials, and standards for their use in repairs. Organizing the storage of acids, alkaline substances, obturating materials,

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and rules for issuing them. Measures for the prevention of ^{burns} ~~fires~~ and ~~acid~~ poisoning by acids, anti-freeze mixtures, alkaline substances; the respective means of first aid.

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SUBJECT 11: ORGANIZING THE WORK AND THE PLACE OF WORK

Exercise 1. The place of work. The effects exerted by intelligent arrangement of the place of work, by way of increasing the productiveness of labor and the quality of the output. Types of working places: stationary and mobile. Equipping the place of work for the storage of tools, devices, materials, documents, and so forth. Norms, standards, and models of equipment. Fitting up the place of work. Permanent sets of working and measuring tools, devices, and materials. Standards and norms for the permanent sets. The influence of complete, high-quality equipment upon productive work.

Exercise 2. Making plans for the place of work. Rules and sequence for placing tools in drawers, on shelves, and on stands, etc. Rules and sequence for placing measuring tools, devices, materials, half-finished material, finished articles, and technological documents in the shop during the time of work. Organizing

the work in keeping with the place of work. Intensity, speed, rhythm, regime of work, and rest. Time required, and quality and nature of the work done to prepare, fit, and equip the shop for the work. Familiarization with the process of detailing for the work and with the technical and shop-work papers. Choice of a place for doing the work. Protecting the place from dust and precipitations. Mobile stands and racks. Reclining bogies for the worker who has to lie down to work beneath the machinery. The construction of pits, ramps. Lifting devices. Choice of ~~tools~~ tools: standard and special. Special stripping devices. Covering the lights. Preparing the place for work under field conditions.

Exercise 3. Safe practices for the work. Types and causes of injuries: contusions, wounds, dislocations and sprains, fractures, plugging up of eyes and injury by chips, stopping up of eyes and respiratory tract by metallic dust; contusions and wounds resulting from the fall or other movements of heavy objects; contusions and wounds caused by individual parts taken out during the work; etc.

Exercise 4. Basic measures for the prevention and elimination of causes of accidents. Safe methods of performing the work. Protective and safety construction. Choice of special instructions for safety in the different types of work. Fire-protection measures for tank repairs. Special characteristics of repairs on fuel

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tanks, and of welding work inside the machine (vehicle). Rules for using the regular prescribed fire-fighting equipment in putting out a fire.

SUBJECT 12: RECEIVING THE TANK FOR REPAIRS

Documentation concerning a tank received for repairs. External inspection of the tank. Checking on the completeness of the tank and its individual assemblies. Determining the technical conditions of the various basic assemblies. Making out the reception report.

SUBJECT 13: RULES FOR DISASSEMBLING AND ASSEMBLING THE MECHANISMS

Exercise 1. General rules for ^{dis-}assemblies that will preserve the individual details and facilitate subsequent assembly. Methods for unscrewing parts at inaccessible points. Methods of extracting corroded nuts and bolts and removing the broken parts. Getting individual assemblies (mechanisms) ready for a careful check of their condition. Preparing individual parts for assembly. Check on the completeness and cleanliness of a surface; selection of tools and supplementary devices.

Exercise 2. General rules for mounting a job, maintaining a high quality of assembly work. Methods of preventing spontaneous unfastening of bolts, nuts, and pins.

Correct ways to select tools for performing a given operation. The proper way to lay down the tools and ^{to, THEM IN} place/and the assembly-rack. Proper choice of strapping devices, punches, stretching tools. Methods of using supplementary tools and devices. Checking on correctness of the assembly of a mechanism, etc. General rules for mounting an assembly, filling up lubrication. Technical specifications for disassembly and assembly of mechanisms. Technological charts and methods of using them.

SUBJECT 14: REPLACING A MOTOR; REPLACING AND REPAIRING ITS SYSTEM

Exercise 1. Preparatory work for taking out a motor. The device for taking out a motor. Removing from a tank fixtures in need of replacement. Preparation and mounting of fittings. Preparation of the new motor for mounting. Preparing the place where the motor is to be set in. Mounting the motor. Centering the motor with the transmission assemblies. Fastening the motor to its base frame, and connect-

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ing it with the various assemblies. Mounting all of the individual parts taken out.

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Connecting pipe conduits and electric wires. How to regulate the steering gear. Technical specifications and technological charts bearing on the replacement of motors.

Exercise 2. General rules for partial disassembly of a motor and replacement of individual major or minor assemblies and individual parts. Taken out the cylinder-head and replacing the gasket between the head and the cylinder block. Replacing the push-rod valve and valve spring. Replacing the fuel pump. Checking and regulating the angle of advance of the fuel injection. Taking out and replacing the fuel injector. Replacing the spring of the pressure valve and the seat of the fuel pump section and the connections of its actuating mechanism. The fuel supply oil and water pump. Taking out and replacing the air-distributor and starter valves. Replacing the air compressor. Replacing the generator and the interrupter-distributor valves. Replacing the speedometer conduit.

SUBJECT 15: REPLACING AND REPAIRING THE TRANSMISSION ASSEMBLY

Exercise 1. Replacing the principal clutch, and the ventilator on the tank. Replacing and centering the transmission case. Replacing the reverse gear mechanism and the cross drive transmission. Technicological specifications and the proper technicological sequence.

Exercise 2. Disassembly into minor assemblies and individual parts. Washing. Inspection, measurements, repairs, replacement and fitting of individual parts of the transmission externally and of the running gear: main clutch, transmission case, reversing mechanism, main transmission, cross drive transmission (reducer). Assembly of the minor sections and of the larger assemblies taken as a whole. Adjustment and trial run.

Exercise 3. Disassembly, inspection, repair, and replacement of individual parts of the steering-gear mechanisms. Assembling the steering-gear mechanisms and installing them on the tank. Regulating the steering rods, and conduits, and those of the fuel pump, of the main clutch, and of the brakes. Technical specifications for repairs and adjustment of the steering-gear mechanisms.

SUBJECT 16: REPLACING SECTIONS AND DETAILS OF THE SUSPENSION AND OF THE WHEEL ASSEMBLY

Replacing individual parts of the suspension and of the wheel assembly:

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suspension roller and road wheel; track tightener wheel; rocker arms. springs; and torsion mechanism. Replacing the track tension mechanism. Overhauling the track. Regulating the suspension and tension of the caterpillar track. Technical specifications for taking down, mounting, and regulating the minor assemblies of the suspension and of the running gear.

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SUBJECT 17: TRIAL RUN AND TESTS AFTER REPLACEMENT OF DETAILS AND/OR MINOR ASSEMBLIES

Purpose and procedure of the trial run. Inspection of individual parts, and correction of defects. Control tests. Stand and devices for these tests. Trying out the tank while it is not in motion. Preparing the tank for its test run. Drawing up the turn-in documents. Technical specifications for testing a tank.

ELECTRICIANS AND BATTERY SPECIALISTS

Purpose of Training. 1. To impart thorough knowledge concerning structure, functioning, defects (or malfunctioning), and rules for servicing assemblies and systems of electric equipment.

2. To teach repairs on the assemblies and devices of systems of electric equipment.

3. To teach the methods of charging and servicing storage batteries.

DIRECTIVES CONCERNING METHOD

Study of the fundamentals of electro-technology, structure of the materiel, diagrams of electric equipment, causes of malfunctioning, and methods of removing them must be directed toward the end of teaching the specialist quickly to find and eliminate irregularities in the system of the electric equipment of the combat vehicles.

In the process of teaching the foundations of electro-technique and electric materials extensive use should be made of practical demonstrations of the technology of repairs as applied to electric devices and to storage batteries; and the mounting and taking down of electric devices should be demonstrated directly on the combat vehicles.

Practical work in seeking out eliminating irregularities in the system of electric equipment must be done on the combat vehicles themselves and on the storage batteries.

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In teaching the fundamentals of electro-technique, use must be made of visual aids to facilitate understanding of the phenomena of electro-magnetism and of electro-magnetic induction.

Topics that have to do with the study of electric equipment should be worked out making use of mounting and demounting devices and assemblies, and also some of the work stands in action.

In every one of the exercises, the students must be made familiar with the devices used to facilitate the work on servicing and repairing electric equipment and storage batteries.

Page 39:List of Subjects and Time spent on each

Designation of Subjects	Number of Hours for:	
	Electricals	Battery Specialists
1. Tanks and Self-Propelled Mountings (Automobiles).....	2	2
2. Structure of the Tank (Automobile)	10	10
3. Fundamentals of Organization and Technology relating to military Tank (Automobile) Repairs	4	2
4. Materials used in the Repairs on Tanks (Automobiles)....	10	11
5. Electrotechnical Materials and their Properties	4	2
6. Information on the Subject of Electro-Technique.....	20	20
7. General Structure of the Electrical Equipment of the Tank (Automobile)	24	32
8. Storage Batteries	14	76
9. Military Means used for Repairs and Servicing of Storage Batteries	6	6
10. Organisation of the Work and of the Place of Work	8	8
11. Work of the Fitter and Mechanic (Assemblies)	12	12
12. Repairs on Storage Batteries	4	14
13. Structure, functioning, repairs, and testing of the generator and of the relay-regulator	10	--
14. Structure, Malfunctioning, Repairs and Testing of Starter	8	--
15. Structure, Repairs and Testing of Supplementary Apparatus for Electric Equipment	16	--
15. Structure, Malfunctioning, and Repairs of Electric Connections for Turret Revolution and Commanders' Controls	8	--
17. Structure, Repairs, and Testing of Ignition System	15	--
TOTAL: 175		175

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Page 39: (cont'd)SUBJECT 1: TANKS AND SELF-PROPELLED MOUNTINGS (AUTOMOBILES)Subject

The subject matter is the same as that shown under ~~Exercise~~ 1 of the course for General Assembly Mechanic and Assembly-Unit Specialist (for Tank Force).

SUBJECT 2: STRUCTURE OF THE TANK (AUTOMOBILE)

Exercise 1. The subject matter is the same as that shown for Exercise 1, Subject 2,

for General Assembly Mechanic and Assembly-Unit Specialist (for Tank Force).

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Exercises 2, 3, 4, and 5. The subject matter is the same as for Exercises 1, 2, 3, and 4 of Subject 3 for the training of General Assembly Mechanics and Assembly-Unit Specialists (for Tank Force).

SUBJECT 3: FUNDAMENTALS OF ORGANIZATION AND TECHNOLOGY RELATING TO MILITARY TANK(AUTOMOBILE) REPAIRS

The subject matter is the same as that of Subject 9 of the instruction of General Assembly Mechanics and Assembly-Unit Specialists.

SUBJECT 4: MATERIALS USED IN THE REPAIRS ON TANKS (AUTOMOBILES)

The subject matter is the same as for Subject 10 for General Assembly Mechanics and Assembly-Unit Specialists (for Tank Force).

SUBJECT 5: ELECTROTECHNICAL MATERIALS AND THEIR PROPERTIES

The purpose of conductors and insulating materials. Characteristics of the electro-insulating materials: mica, micaite, steatite, ebonite, fibra (a leatheroid material), carbolite, rubber, insulating tape. Conducting materials and problems that arise in connection with them. Characteristics of copper and aluminum. Construction of lines and cables.

SUBJECT 6: INFORMATION ON THE SUBJECT OF ELECTRO-TECHNIQUE

The subject matter is the same as that of Subject 4 of the instruction for General Assembly Mechanics and Assembly-Unit Specialists (for Tank Force).

SUBJECT 7: GENERAL STRUCTURE OF THE ELECTRIC EQUIPMENT OF THE TANK(AUTOMOBILE)

The subject matter is the same as that of Exercise 1, Subject 5, of the instruction for General Assembly Mechanics and Assembly-Unit Specialists.

SUBJECT 8: STORAGE BATTERIES

Exercise 1. The subject matter is the same as that of Exercise 3, Subject 5, of the instruction for General Assembly Mechanics and Assembly-Unit Specialist (for Tank Force).

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Exercise 2. Malfunctioning of the storage batteries, their discovery, and their removal. Sulphatization and reasons for its occurrence. Signs indicative of sulphatization. Increased self-discharge. Short-circuited and discharging cells. Wearing out of the separators. Heating of the terminals. Hardening and distension of the active masses of the plates.

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Exercise 3: Checking on the level and density of the electrolyte. Using a charge fork to check on the tension of a storage battery. Checking on the condition of the clamps and tie plates. Eliminating the discovered defects.

Exercise 4: Basic requirements for servicing a storage battery: cleanliness of the storage battery; cleanliness of the openings of the stopper; maintaining the proper level of electrolyte; excess beyond the permissible rate of discharge of a storage battery; the proper time for charging the battery.

Exercise 5. Rules for charging a storage battery. Forcing the charge regime. Regime of discharge. Permissible force of the discharge current and permissible time to be allowed for discharge. Control of the degree of charge of the storage battery. Permissible degree of discharge in winter and in summer.

Exercise 6: Instructions concerning charge and discharge of the storage battery. Getting a dry battery into working condition. Preparing the electrolyte and filling up the cells. The first charge; the second charge. Checking the battery with a loading fork. Forced charging of a battery. The checking and training cycle. Charging a sulphatized storage battery. Charging a battery that has been placed in storage with electrolyte in the cells. Tables for adjustment of the specific weight of the electrolyte. Choice of storage batteries to be placed in a group for charging, and ways of connecting them. Choice of the strength of current for the first and the second step of the charging process. Preparing the battery for charging. Check on the charging process.

Exercise 7. Purpose and periodicity of the control and training cycle. Regimes of charge and discharge. Checking on the condition of a storage battery. Evening out the density of the electrolyte in the different jars. The capacity furnished by the battery. Choice of storage battery to form a group, and ways of connecting them. Choice of strength for the charging and the discharging current. Control over the charging process and the discharging process.

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Exercise 8. Storage battery record card. How to make entries on a battery record card, and how to check the entries. Booklet to record charges of the storage battery. Method of keeping this record. Booklet to record repairs on a storage battery. The method of making entries in the repair booklet.

Exercise 9. Storing a dry storage battery. The temperature regime required. The length of time for which a battery can be kept in dry condition. How to store a battery that has been put in working condition. Periodicity of charges and control and training cycles for a storage battery.

Exercise 10. Preparing a storage battery for use under summer conditions. Special traits characterizing summer conditions, in so far as they exert an influence upon a storage battery and its servicing. Method of equalizing the density of the electrolyte in the different jars and bringing it up to the required standard.

Exercise 11. Preparing the storage battery for use under winter conditions. Special characteristics that exert an influence upon storage batteries and its servicing under winter conditions. Method of equalizing the density of the electrolyte in the different jars and bringing it up to the required standard. Special rules for storing and operating storage batteries under winter conditions.

Exercise 12. Preparing the electrolyte. Filling the storage battery. Choice of batteries to be put in a group, and the ways of connecting them. Regime for the first and second charge, and the discharge, of the storage battery. Checking on the charging process of a storage battery.

SUBJECT 9: MILITARY MEANS USED FOR REPAIRING AND SERVICING STORAGE BATTERIES

Exercise 1. Specifications for the FZS equipment. Set of instruments that go with the automobile. Supplementary equipment.

Exercise 2. Structure and functioning of the motor of the charging assembly. Malfunctioning of the motor, the reasons, and methods of elimination. Care of the motor. Preparing the motor for starting. Starting and stopping the motor.

Exercise 3. Technical characteristics of the generator. Malfunctioning of the generator and methods of elimination. Installation of motor and generator. Care of the generator. Feed circuit of external charge. Principal distributing plate. Construction and principle of action of the switch. The reverse-current relay. Prepa-

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rations for placing a charge on the PZS. Shutting down the work on the PZS.

Exercise 4: Structure and principles of functioning of the electric measuring devices. Inspection, check, and correction of electric measuring devices. The amperes meter, the volt meter, the charging fork, the potentiometer, the areometer, and the thermometer.

Page 43:SUBJECT 10: ORGANIZATION OF THE WORK AND OF THE PLACE OF WORK

The subject matter is the same as that of Subject 11 for General Assembly Mechanics and Assembly-Unit Specialists (for Tank Force).

SUBJECT 11: WORK OF THE FITTER AND MECHANIC (ASSEMBLIES)

Exercise 1. Tools and devices for plotting. Principal stages in the process of plotting. Principal methods for plotting planes and three-dimensional figures on pattern, on sketches, on models, and on the job itself. Plotting by bases and centered lines. Reasons for flaws in plotting. Organizing the working place for plotting.

Exercise 2. The process of ~~working~~ filing details, its purpose, and its range of applicability. ~~Files,~~ Files, their classification, and the material used in making them. Choice of files as determined by the nature of the work to be done and the nature of the material of which the part is to be made. Care of the files, and methods of storing them. Methods of filing. Position of the piece to be filed. Use of the tool. Regulating the strength and coordination of movement of the right hand and the left hand in using a file. Methods of filing plane and curved surfaces. Checking on the quality of the filing, control and measurement tools used in connection with filing. Flaws in filing and their prevention. Safe working practices in filing.

Exercise 3. The purpose and nature of scraping. Scraping plane and curved surfaces. Material, construction, and sharpening of scrapers. Checking a scraped surface. Checking devices. Allowances for inaccuracy in scraping. Purpose and nature of polishing (or grinding). Classification of grind wheels according to abrasives, according to the type of binding material, and according to dimensions. ~~abrasion.~~ ~~abrasion.~~ The purpose of ~~grinding~~ Powers and pastes for ~~grinding~~ ~~abrasion.~~ Methods of abrasion. Check on the quality of the grinding. Faults in grinding, their causes, methods of preventing and correcting them.

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Exercise 4: The drilling process and its uses. Hand drills and mechanical drills. Tools used in drilling. Hand drills and electric drills, and their modes of functioning. Drill benches. Using a drill bench. Adjusting the bench for drilling. Special devices used in drilling. Methods of inserting, fastening, and removing the cutting instrument, and the piece to be worked upon. Different types

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of drilling. Choice of drills and methods of performing the different types of drilling. Causes of breaking drills, and measures for preventing such breaks. Methods of sharpening the drill and of checking on the correctness of the sharpening. Safe work practices for the sharpening. Flaws in drilling, and measures for preventing them.

Exercise 5: The notion of threaded joints. Elements of the threading. Metrical and inch threadings. Tool for cutting threads. Methods of cutting threads. Threaded joints. Wrenches for nuts. Checking threads with a thread-meter. Cutting an external thread (with screw dies). Cutting internal threads (with screw taps).

Exercise 6: Riveting, its purpose and uses. Types of riveted seams. The pitch of the riveting seam. The inserting head, the rod, and the tightening head of the rivet. Instruments and devices for riveting by hand, their construction and purpose. The sequence of processes and the methods of riveting by hand. Types of flaw that occur in riveting by hand, their causes, and measures for preventing them. Safe working practices in riveting by hand.

Exercise 7: The soldering process and its range of application. Instruments and devices used in soldering, and the methods of using them. Soft and hard solder, and methods of using them. Types and causes of flaws in soldering, and measures for their prevention. Organising the place of work, and the technique of safe working practices, in soldering. Preparing individual parts for soldering. Soldering objects with soft or hard solder.

SUBJECT 12: REPAIRS ON STORAGE BATTERIES

Exercise 1. Method of receiving a storage battery for repairs and issuing after repairs are completed.

Methods of checking on the condition of a storage battery and of discovering defects. Equipment for repairs on storage batteries. Drilling out and

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removing the connections between cells. Removal of the sealing putty. Removal of separators and disconnecting the blocks. Washing the plates. Testing the battery jars. Welding parts of the storage battery (welding on ears and cramp irons, welding plates, and welding on connections between cells). Preparing the separators. Preparing the sealing putty. Assembling the plates in the blocks. Putting the plates into the jars and pouring in the electrolyte.

Exercise 2. Practical work in repairing storage batteries.

SUBJECT 13: STRUCTURE, FUNCTIONING, REPAIRS, AND TESTING OF THE GENERATOR AND OF THE RELAY-REGULATOR

Exercise 1. The electromagnetic properties of current. Power and work of the current; units of measurement of power. The principle of functioning of the generator. Structure and characteristics of the generator. The principle of functioning of the relay-regulator. The purpose of the relay-regulator and familiarity with its modes of functioning.

Exercise 2. Basic irregularities of the generator and of the relay-regulator. Causes of malfunctioning and methods of removing them. Care of the mechanism while it is in operation.

Exercise 3. Taking out the generator and the relay-regulator and disassembling them into minor assemblies and individual parts. Technical specifications for repairs of the generator and relay-regulator. Repairs, fitting, and replacing of individual parts on the generator and relay-regulator. Testing the mechanism and removing defects. Installing the generator on the tank and removing defects. Practical work on repairs of the generator and relay-regulator.

SUBJECT 14: STRUCTURE, MALFUNCTIONING, REPAIRS, AND TESTING OF STARTER

Exercise 1. Principles and characteristics of the functioning of the starter. Purpose and structure of the main parts. Structure of the starting devices and their connection with the starter. Setting up the starter. Rules for using the starter.

Exercise 2. Malfunctioning of the starter and of the starting devices. Reasons of malfunctioning. Methods of preventing and eliminating defects. Reasons for rearing of the starter, and means of prevention. Care of the starter.

Exercise 3. Taking out the starter and breaking it down into its various as-

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assemblies and individual parts. Technical specifications for starter repairs. Repair, fitting, and replacement of individual parts of the starter. Assembly and regulation of the starter. Testing, and removal of defects. Mounting the starter and checking its work in operation.

SUBJECT 15: MALFUNCTIONING, REPAIRS, AND REPAIRS OF ELECTRIC CONNECTIONS FOR TURRET REVOLUTION AND COMMANDER'S CONTROLS *

Exercise 1. Structure and functioning of the turret-revolving mechanism and its (mechanical and electrical) connections. Sequence in regulating the connections.

The electricians do not study the subjects dealing with automobiles and storage batteries; the time set free in this manner is devoted to subjects chosen at the discretion of the unit commander.

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Malfunctioning of the revolving mechanism and its electric connections. Prevention and connection of defects. Servicing the revolving mechanism and its electric connections. Structure of the commander's turret. The tank commander's control of the revolving of the turret. Malfunctioning of the electric connections of the commander's controls.

Exercise 2. Removing the motor and breaking it down into its assemblies and individual parts. Technical specifications for motor repairs. Repair, fitting, and replacement of individual parts. Assembling the motor. Testing, and connecting defects. Mounting the motor on the tank and check on its functioning. Disconnecting and removing defects. Repairs on the controller. Repairs on the commander's control of the revolving mechanism of the turret.

SUBJECT 16: STRUCTURE, REPAIRS, AND TESTING OF SUPPLEMENTARY APPARATUS FOR ELECTRIC EQUIPMENT

Exercise 1. Purpose and general structure of the ventilator motor. Its attachment to the tank, and its connection to the system of electric equipment. Care of the motor, and rules for its use.

Purpose and structure of the revolving-contact structure, and the grounding; Rules for its use and care. The signal structure and its regulation. Malfunctioning of the supplementary equipment, its causes, and means of correction. The structure of the electric starters of gun and machine gun. Servicing the devices.

Exercise 2. Purpose and structure of the dashboards and dashboard blocks. The

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manner in which it is joined to the sources and consumers of current. The purpose of the electric control devices and notion concerning their structure and functioning. Purpose of the safeties, button switches, and tumbler switches. Numerical data for the various safeties and circuits. Defects of the control devices and dashboards, methods of discovering and correcting them. Servicing the control devices.

Exercise 3. Location and structure of the devices for internal and external lighting, and rules for using them; their connection to the system of electric equipment. Defects, methods for discovering and correcting them. Diagram for the mounting of electric equipment.

Exercise 4. Repairs on the supplementary apparatus of the tanks: revolving contact structure, driver's dashboard, accumulator dashboard block, dashboard for the electric devices of the turret, dashboard, dashboard for defect indication, for commander's disconnecter (blocking switch), for grounding switch, and for sound

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signals. Mounting the supplementary apparatus on the tank and check on its functioning. Repairs on the internal and external lighting devices of the tank: headlights, ceiling lights, rear lights, lights for artillery devices. Mounting the devices for internal and external lighting on the tank, and check on their functioning. Regulation of the headlights.

SUBJECT 17: STRUCTURE, REPAIRS, AND TESTING OF THE IGNITION SYSTEM

Exercise 1. Purpose of the ignition system. Means of transforming low-voltage and high-voltage currents. Ignition diagram. Functioning of the ignition system. Insulation and its purpose. Structure and functioning of the devices for insulating the battery ignition. Supplementary devices. Methods of checking and mounting ignitions. Defects of the devices, and methods of discovering and correcting them. Servicing the ignition devices.

Exercise 2. Repairing the magneto and the contact breaker and distributor. Repairs on the sparkplugs. Repair of the ignition lock. Mounting the ignition devices on the motor. Technical specifications and technological charts for repairs, regulation, and testing of the ignition devices.

MACHINE TOOL LATHE HANDS

Purpose of training. 1. To give a thorough knowledge of the materials used in repairs.

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2. To teach the use of the instruments and devices; and to train the men in the proper methods of doing the work.

INDICATIONS AS TO METHOD

Study of the materials and methods of doing the work must be such as to make it possible for the students properly to choose the materials for making individual parts and for repairing them.

Practical work in the process of teaching must be chosen in such manner as to meet the requirements of repairs of specific assemblies or the making of spare-parts.

The teaching must be conducted in accordance with the established technological requirements and technical specifications, and must at the same time include the latest methods.

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List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Materials used for repairs on Tanks (Automobiles)	10
2. Organization of the Work and of the Working Place	4
3. Work of the Fitter and Mechanic	8
4. Basic Principles of Metal Cutting	20
5. Fitting and Permissible Variations	8
6. Instruments for Control Measurements	4
7. Turners Benches	15
8. The Technological Process	78
9. Drill Benches	2
10. Cutting Machines	3
11. Grinding ^{Polishing} Machines	3
12. Special Types of Fitting Work	12
13. Interpretation of Drawings and Sketches	8
TOTAL:	175

SUBJECT 1: MATERIALS USED FOR REPAIRS ON TANKS (AUTOMOBILES)

The subject matter is the same as indicated for SUBJECT 10 for General Assembly Mechanics and Assembly-Unit Specialists.

SUBJECT 2: ORGANIZATION OF THE WORK AND OF THE WORKING PLACEACSI FORM
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The subject matter is the same as indicated for Subject 11 for General Assembly Mechanics and Assembly-Unit Specialists (for Tank Force)

SUBJECT 3: WORK OF THE FITTER AND MECHANIC

The subject matter is the same as indicated for Exercises 1, 2, 3, 5, 9, and 10 of Subject 9 for General Assembly Mechanics and Assembly-Unit Specialists (Automobiles).

SUBJECT 4: BASIC PRINCIPLES OF METAL CUTTING

Exercise 1. The importance of processing metals by cutting. A historical view of the study of processing metals by cutting, and the ~~importance~~ part played by Russian scientists in creating the science of metal cutting. The development of machines and work benches under the five-year plan ~~and~~ for establishing and developing the national economy of the Soviet Union.

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Exercise 2. The nature of the process of metal cutting. The process of forming shavings of malleable and frangible metals. Different methods of processing the metals: turning, drilling, grinding(~~milling~~), planing, cutting, and polishing.

Exercise 3. Cutters. Parts of the cutter. Cutting angles. The rear angle, and its importance in preventing ~~excess~~ ^{superheat} of the cutter and blunting. Magnitudes of the rear angles of cutting for skinning and cleaning work, for external machining, and for boring, depending on the ~~factor~~ ^{way in which} the cutting edge is ~~used~~ ^{applied}.

Exercise 4. The forward angle and its influence ~~on~~ ^{forward} the shape of the chips. The pressure of the chip against the cutting edge. The magnitude of the ~~front~~ ^{forward} angle of the cutting edge for stripping and cleaning work in processing brittle and malleable materials. The forward and the rear angle and their influence upon the thickness of the shavings and the functioning of the knife. The magnitude of the plane angle in relation to the diameter and the material of the part in question. The angle of slant of the principal cutting edge, and the choosing of this slant according to the nature of the part to be worked upon. Use of the cutting edge with concave forward edge. Formation of a hollow on the forward edge when working with a malleable material. Changing the angle of cutting in relation to the position of the cutting tool ~~edge~~ with respect to the center line. Change of the grinding angles of the cutting tool. Classification of cutting tools according to the type of ~~production~~ ^{manufacture} (inserted, welded, soldered), according to their shape (~~straight~~ ^{in one piece}, disc-shaped, spring-action, and

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chasing tools), and the direction in which the cutting tool is applied (right, left, both sides). Holders for the cutting edges. Combined cutting edges.

Exercise 5. The chip and its formation. The shape of the chip as determined by the angle of cutting. Hot processing in cutting. Removal of the chips. The influence of nodes on the cleanness of the finish. The manner of applying the cutting tool and determining the manner in which it is to be applied. Pressure in the cutting process. Speed in the cutting process. Speed cutting of metals according to the method invented by the Stakhanovite mechanic Bortkevich. The functioning of the cutting edge. Notion concerning the stability of the cutting edge. Qualities required of the cutting edge: hardness, resilience, malleability. Resistance to high temperatures and bluntness. Influence of speed upon the stability of the cutting edge. The importance of cooling and oiling while the cutting is in progress. Composition of the cooling fluid. Reasons for breakage of cutting edges.

Exercise 6. The manufacture of cutting edges: carbon and fast-cutting steels. Hard alloys. Choice of material for cutting edges. Manufacture of cutting edges by forging, turning, grinding, and milling processes. Thermic processing of cut-

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ting edges made of various different materials. The degree of heating, incandescence. Scientific methods for thermic treatment. The manufacture of cutting edges fitted with hard alloys. Dressing the cutting edges after the tempering process. Checking to make sure that the dressing is in order.

SUBJECT 5: FITTINGS AND PERMISSIBLE VARIATIONS

The making and/or processing of parts according to fixed shape and dimensions. Tolerances allowed for the work. Precision in the work. Basic notions concerning deviations and the reasons for deviations. Standard dimensions and actual dimensions. Limiting dimensions. Deviations above and below the prescribed in dimensions. The actual deviations. Notions concerning admissible variations. Systems of tolerances: the system of the opening and the system of the shaft. Special characteristics of these systems; their advantages and disadvantages; occasions for using them. Classes of precision. Fittings; types of fitting and their range of applicability. Designation of fittings. Allowances and fittings according to standard. Allowances and fittings according to the classes of precision. Graphic presentation of allowances (permissible variations), clearances, and tightness.

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Measurements. Degree of accuracy of the measurements. Factors influencing the accuracy of the measurements. Measuring and testing instruments of special accuracy. Sliding calipers accurate within 0.02 mm.; precision micrometer; inside caliper gage; gear gage; universal angle gage. Standard and special calibrating gages and clamps, threading gages (rings, plug gages). Plane-parallel end plates, their importance, accurate measurement, devices for measuring plates (slabs). Structure and ^{purpose} ~~supplement~~ of the before-mentioned instrument, and methods of using it. Indicators, their structure and use. Templates and molds; their purpose, construction, and methods of use. Care of measuring and testing instruments, and their storage.

SUBJECT 7: TURNERS' BENCHES

Exercise 1. Principal brands and types of turner's and screw-cutting benches. Data concerning their manufacture, and special characteristics of work with them. Use of various types of benches. The shaft of the front mandrel. Requirements concerning the stability of the shaft. The structure of the bearings. Supporting structures. Gear-shift and power-gear ^{control} box. Mobile pinions, friction sleeves, hanged pinions, and their mode of functioning. Gear-box tabulations, and how to

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use them. The support structure of modern turning lathes. Safety mechanism of the support structure (interlocking gear). The tool clamp. Accessories for quick insertion of the cutting tool. The rear mandrel. Devices for moving rear mandrels. How the operating movement is imparted to the lathe. The individual electric connection for the lathe. Choosing a kinematic system for the turning lathe. ^{connection}

Exercise 2. Purpose and general description of the turning lathe: bench, front mandrel, shaft, speed mechanism, support structure, rear mandrel, power-feed mechanism. Guard structures for the dangerous places of the lathe. Starting and stopping the lathe.

Exercise 3. The importance of testing the accuracy of the turning and screw-cutting lathe. Standards of accuracy for turning and screw-cutting lathes. Instrument for testing the accuracy of the lathe. Use of the instrument in testing the lathe. Testing the bench. Testing the shaft of the front mandrel. Testing the rear mandrel. Testing the guide screw. Method of testing the lathe. Testing the lathe, at an idle run and under load, for neatness and accuracy of the work.

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Requirements as to the foundation for setting up the lathe.

Exercise 4. Operating the lathe. Starting and stopping a turning lathe.

Mounting the part at the centers. Setting up the carrier plate. Setting a center for the shaft. Setting up a center for the rear mandrel. Moving the rear mandrel along the bench and fastening it. Testing the center settings. Setting the clamp on the part to be processed. Setting parts in the center. Lubrication of the rear center opening. Fastening down the shaft of the rear mandrel. Testing the tightness of the fastening of the part (to be processed) at the centers. Starting and stopping the lathe. Removing the part and the carrier plate.

Exercise 5. Placing a part in the mold. Placing the mold on the shaft. Putting the jaws at the right distance. Putting in the part to be processed and making a preliminary setting of the jaws. Adjustment of the mounting to the torsional play. Final fastening of the jaws of the mold. Starting and stopping the lathe. Removing the part from the mold. How to put the cutting tool in the tool clamp. Bringing the rear mandrel to the support. Unscrewing the clamp nut of the tool clamp. Choice of blockings. Regulating the clamp strip by means of the setting screw. Preliminary fastening of the cutting tool. Checking the position of the cutting tool with respect to the center. Final fastening of the cutting tool. Handling the support

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Structure. Placing the part (to be processed) with respect to the centers. Placing the cutting tool in the tool clamp. How to obtain even movement of the upper carriages by turning the handle with the right and with both hands. Even movement of the lower carriages by turning the handle with the right and with both hands. Simultaneous movement of both carriages by the combined method. Regulating the clamp of the lower and upper carriages. Turning the upper carriages in a circle and fastening the bolts.

Exercise 6. Adjustment for feeding. Adjustment for lengthwise feeding. Adjustment for transversal feeding; practice in operation of the lengthwise and transversal feeding. Setting the tool for depth of the cut, and taking out a test chip. Setting the lathe for speed and feeding. Setting the tool for a given depth of cut. Taking out a test chip for a distance of 4-5 mm. with feeding by hand. Checking the correctness of the tool setting (by measuring the piece to be processed). Cor-

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rection of the tool setting. Taking out a chip 20-30 mm. in length with feeding by hand. Using a limb to set the tool for depth of cut. How to set the cutting edge of the tool on the surface of the piece to be processed. Marking the limb division (or zero setting). Shifting the tool toward the right up to the surface of the piece to be processed. Computing the number of graduations for turning the carriage screws. Turning the lower carriage screw to the computed number of graduations. Removing chip for a distance of 4-5 mm. Checking by measurement the correctness of the dimension obtained. Removal of chip for a distance of 20-30 mm.

Care of the lathe and of the place of work. Organization and equipment of the place of work. Lubricating and wiping the lathe.

Exercise 7. Intelligent use of the turning lathe. Power and coefficient of useful action of the lathe. Determining the power of the lathe. Torsional moments. Determining the torsional moment. The torsional moment of the cutting tool. Dependence of the chip cutting on the power of the lathe and the stability of its parts. Methods of determining the maximum chip cutting according to the power and stability of the lathe. The rating plate of the turning lathe. Uses of the rating plate in the practical work of the lathe worker. Intelligent choice of working regimes at the turning lathe. ^{Use} ~~Uses~~ of the turning lathe for cleaning and peeling work. Definition of the concept of the "work regime." Choice of the profile of the chips and of the speed of cutting in peeling and finishing work. Use of cutting tools made of fast-cutting steels and hard alloys. Outfitting the number of passings to increase the depth of the cut.

Page 53:SUBJECT 8: THE TECHNOLOGICAL PROCESS

Exercise 1. The meaning of "technological process." Determination of the basic elements of the technological process: operation, equipment, transition, step. The meaning of "bases:" fundamental, supplementary, control. Choice of a basis according to the shape of the piece to be processed, the nature of the processing, and the type of device used. Dependence of the sequence of work on the choice from among the before-mentioned bases. Breaking up the process into separate operations and transitions. Determining the sequence of the different operations and transitions. Choice of tools and devices for each operation and transition. Intelligent analysis of the technological processes involved. Technological documentation: the forms used, and the contents.

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Choice of technological charts for the processing of the principal types of pieces to be processed.

Exercise 2. Rounding off external cylindrical surfaces.

Cylindrical finishing. Black and clean finishing. Methods of placing the half-finished material between the centers. Straight-through cutting tools. How to set them in the tool clamp and methods for checking the setting for center.

Exercise 3. Methods of finishing cylindrical surfaces. Advancing the cutting tool: by hand and automatically. Cutting of the end planes. Cutting tools used in processing the end planes, and the way to sharpen these tools. Flaws, their causes, and measures for their prevention. Finishing the ^{external} surfaces of smooth and uneven cylinders in molds advanced by hand. The 5th class of precision.

Exercise 4. Finishing smooth and uneven external surfaces in centers, with manual and with automatic advance. The 5th class of precision. Alignment of the actual position of the centers. Placing the piece to be processed between the centers. Putting in, checking, and fastening the cutting tool. Adjusting the ratio for speed and advance (feed). Black finishing of smooth surfaces. Black finishing of uneven cylindrical surfaces. Cutting ledges and end planes. Clean finishing of cylindrical surfaces. Checking the dimensions.

Exercise 5. Cutting grooves. Designation of grooves and of their forms. Cutting tools for finishing external and internal grooves and ^{ways} of setting them. Methods of setting in articles and processing them. Cutting-off tools, their construction, and angles of sharpening. Putting in the cutting tools. Fastening down the ^{part} to be processed for cutting off. Methods of doing the work of cutting off. Reasons for vibration and breaking of cutting tools, methods for preventing them. Flaws and types of flaws, their causes, and methods of preventing them.

Page 54: of cutting off. Reasons for vibration and breaking of cutting tools, methods for preventing them. Flaws and types of flaws, their causes, and methods of preventing them.

Exercise 6. Sharpening the cutting tools for external machining. Sharpening the tools for peeling and cleaning. Sharpening straight and bent-back cutting tools. Sharpening grooved tools with rectilinear and curved cutting edges for a given width of groove. Sharpening cutting-off tools. Grinding cleaning cutters on a grind-stone. Using molds to check the precision of the sharpening. Processing pieces (including the processing of cylindrical surfaces) in molds and between

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centers. Cutting notches and end-planes. Finishing grooves and cutting off ends. 5th class of precision.

Exercise 7. Types of drilling. Drills, the principal types and structural characteristics. Rules for sharpening drills. Choice of the drill. Methods of inserting and fastening drills and the pieces to be processed. ^{Turning out,} ~~drilling~~ its importance, and occasions for using it. Methods of drilling and turning out with feeding by hand or automatically. Speed of cutting and amount of feeding; cooling and lubrication. Methods of preventing breaks of the drill and ~~drill~~ ^{flaws;} ~~drill~~ ^{correction of flaws.}

Exercise 8. The importance of countersinking. Countersink bits; their structure, angles of sharpening; and methods of working with them. Countersinks, their designation, their structure, and methods of working with them. Methods of setting the centers, setting devices; punching and drilling centers. Drilling and countersinking through-holes. 5th class of precision.

Exercise 9. Boring out and rectifying cylindrical holes. Boring cutters, their structural particularities, and their angles of sharpening. Holders and boring bars, their structure and use. Setting and fastening tools for countersinking. Methods of setting and adjusting the article to be processed. Work regime for the countersinking of openings. Methods of countersinking. ^{Devices} ~~Methods~~ for fastening broach bits, and their construction. Setting and fastening the broach bit. Accuracy and neatness in operating the broach bit. Speed of cutting and advancing in the operation of a broach bit.

Exercise 10. Methods of broaching through-holes and blind holes. Methods of measurement. Designation of internal grooves and their shapes. Methods of setting the article to be processed and drilling out an internal groove. Flaws, different types of flaws, and methods of preventing them. Black and clean boring of cylindrical holes. 4th class of precision.

Exercise 11. Preparation of cutting tools for internal processing. How to sharpen peeling and cleaning cutters for internal processing. Sharpening recessing and grooving tools. Sharpening cleaning tools on a grind-stone. ^(template shapes) ~~Using molds~~ to check on the accuracy of the sharpening. Processing pieces, inclusive of machining of cylindrical surfaces, undercutting end planes and recesses, and cutting off ends;

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drilling, countersinking, machining, and finishing of cylindrical holes. Precision of the work performed: 4th class.

Machining

Exercise 12. ~~Processing~~ external cone-shaped surfaces. Notions concerning the cone and the various types of cone. Elements of the cone and relationships between them. Methods of machining conic surfaces: full cones, truncated cones, and cones combined with cylindrical surfaces. Processing cones by shifting the rear mandrel. Methods of checking on the amount of shift of the rear mandrel. Cutting tools for the machining of external conic surfaces. Cutting regimes for the processing of conic surfaces. Methods for processing cones by shifting the rear mandrel. Advantages and disadvantages of this method of processing cones. Processing cones by turning the upper carriages of the support. Determining angles and directions of turn of the carriages. Putting in and fastening the cutting tools and the pieces to be processed. Methods of processing a cone by turning the upper carriages of the support structure. Measurement and control of the conic surface. Flaws; their prevention and correction.

Exercise 13. Machining external conic surfaces by turning the upper carriages of the support structure. 4th class of precision.

Exercise 14. Boring out cone-shaped holes. Putting in and adjusting the piece to be processed. Boring out cone-shaped through holes and blind holes. Boring out cone-shaped holes by using the broach bit. Means and methods of measuring cone-shaped pieces. Types of flaw and their causes; measures of preventing and correcting flaws. Rules for safe work practices. Boring out cone-shaped holes. 3rd class of precision.

Exercise 15. Determining the angles and directions of turns of the upper carriages of the support structure. ~~Max~~ Putting up and fastening the upper carriages of the support structure for a given value. Adjusting the lathe for speed and feeding. Putting in and adjusting the piece to be processed. Black and clean boring out of holes of a given dimension. Rectification of cone-shaped holes. 2nd class of precision.

Exercise 16. Machining irregular surfaces. Designation of irregular surfaces. Cutting tools for irregular surfaces, their structure and angles of sharpening. Putting in and fastening cutting tools and pieces for machining irregular surfaces.

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Ways of machining irregular surfaces. The regime of cutting in machining irregular surfaces with the fashioning tool and the ordinary cutting tool by a combination of feedings, shifting the carriages of the supporting structure by hand. Methods of machining by simultaneous lengthwise and transversal feeding of the carriages of the support structure. Using molds (template shapes) to check on the accuracy of the irregular surface. Flaws; their reasons, and measures of prevention.

Exercise 17. Machining irregular surfaces by combined feeding in the template shape. 4th class of precision. Machining irregular surfaces by combined feeding, using the centers. 4th class of precision.

Exercise 18. Finishing the surfaces. Finishing a piece by filing and polishing. Occasions for performing these operations. Using the graver point to obtain clean finish of an irregular surface. Structure of the graver point, and methods of using it. Use of the knurling tool. Rollers; their structure and arrangement. Tool clamps for the knurling tools. Placing the rollers in the clamps. Position of the knurling tool with respect to the piece to be processed. Methods of using the knurling tool. Lubrication. Flaws; and measures of prevention.

Exercise 19. Combined-operations jobs. Processing pieces to include the following operations: machining, broaching, rectification of conic surfaces and holes, machining of irregular surfaces, finishing of surfaces.

Exercise 20: Thread cutting. General information concerning threaded surfaces. Designation of threads. Right and left threading. Basic elements of the thread. Scope of the uses of threading. The system of thread cuts. Instruments for measuring threads, methods and means of using them. Structure of tools for cutting a triangular (external and internal) thread. Chasing tools for cutting threads; the structure and use of these tools. Setting up the lathes for cutting thread. Determining the relation between the number of turns of the shaft and of the guide screw. Computation of changeable gears for metrical or inch cutting of threads on the lathe. Setting up the changeable gears on the swing frame gear mechanism. Conditions for their linking. Tables for thread cutting. Methods of cutting triangular external and internal threads on a cylinder. Cutting a left-handed thread. Types of flaws, and measures for their prevention. Cutting regime for the cutting of threads. Lubrication and cooling. Sharpening the threading tools. Cutting ex-

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ternal and internal band threading. Readyng the piece for thread-cutting with screw taps and threading dies. Fastening down the work piece and setting up the tap screw and threading dies. The speed of cutting. Lubrication and cooling. Calibrating the thread. Flaws and measures of preventing them. Cutting an external triangular thread in a template shape. 3rd class of precision.

Exercise 21. Combined operations jobs. Processing of individual pieces, including all operations of facing, boring, threading, and finishing. Precision of the work performed will fall into the 3rd class of precision. (The work will be done according to sketches and technological charts.)

SUBJECT 9: DRILL BENCHES

Types of drill benches. Types of work done on drill benches. Structure of the drill lathes. Examples of processing pieces by drilling and broaching.

SUBJECT 10: CUTTING (MILLING) MACHINES

Types of milling machines and their designations. Characteristics of the various different milling lathes. Structure of the milling bench. Servicing the lathe.

POLISHINGSUBJECT 11: ~~GRINDING~~ MACHINESpolishing

Exercise 1. Types of ~~grinding~~ lathes and their designations. Types of work done by means of the ~~grinding~~ lathes. Structure of the ~~grinding~~ lathe. polishing-disc
polishing disc.

Exercise 2. Formation of the ~~grinding~~ circle. Characteristics of different discs. Examples of polishing some automobile parts.

SUBJECT 12: SPECIAL TYPES OF FITTING WORK

Exercise 1. The processing of pieces, including all operations. The degree of precision of this work is within the 3rd class of precision.

Exercise 2. The structure of the face plate and its uses. Type of pieces processed on the face plate. Putting in, ~~mounting~~ fastening, and checking the piece to be worked. Balancing the piece by means of a counterweight. Methods of operating with the face plate.

Exercise 3. Work on the corner iron. Structure and uses of the corner iron. Types of pieces processed on corner irons. Balancing. Methods of processing on the corner irons.

Exercise 4. Lathe stays and their uses. Types of lathe stays, their structure, and the methods of putting them in and fastening them. Placing a work piece in

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fixed and mobile lathe stands.

SUBJECT 13: INTERPRETATION OF DRAWINGS AND SKETCHES

Exercise 1. The drawing, its significance. Scale of the drawing. Projection. Types of projection, and ways of using them on a drawing. Specification. Marking metallic and wooden construction in a drawing. Difference between a drawing and a sketch.

Exercise 2. Working with drawings and sketches. Reading off drawings and sketches aloud.

GENERAL ASSEMBLY MECHANICS AND ASSEMBLY UNIT SPECIALISTS (AUTOMOBILES)

Purpose of Training. 1. To study the automobile, its assemblies, mechanisms, and systems.

2. To teach the soldier the operations of assembly work, and to form habits concerning repairs of the automobile and its various individual assemblies.

INDICATIONS AS TO METHOD

The instruction for the general mechanics and assembly unit specialists is conducted in shops, parks, and technical classes.

To give instruction concerning organization of the work and of the place of work, concerning mechanical and heat processing of metals and concerning the technology of repairs of individual parts of the automobile, conducting this work in the automobile repair shop of the unit (or large unit), as follows:

-- by practical work, done by the student himself, on automobiles, individual assembly units, and individual parts;

-- by demonstration of practical work, ~~by one of the best workers~~ at a place of work that is equipped in an exemplary manner, the demonstrations being given by one of the best workers of the shop, by way of explaining the importance of a properly equipped place of work for quantity and quality of the output;

-- performing, one after another, every one of the operations taught (according to specialty) in the repair and mounting ~~of individual parts and assemblies~~ ~~of individual parts and assemblies~~

-- work as member of actively working shop brigade in mounting and taking down the principal assemblies of the automobile.

The theoretical lessons in the class must be conducted with practical demonstrations.

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studying
 In ~~learning~~ the metals and other materials used in repairs, and also in studying the uses of the ~~last~~ working and testing tools, it is essential that the student should be shown samples of steel, cast iron, files, drills, slide gages, micrometers, and control slabs. Exhibitions must be given of the methods of using the working tools and the control and measuring tools.

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Subjects 6 and 13 must be studied in motor parks equipped with all of the equipment called for by the Regulations for the Operation of Motor Vehicles.

List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. History of the Progress of Soviet Automobile Industry	2
2. The Structure of the Automobile (Tractor)	4
3. Structure, functioning, malfunctioning, and adjustment of Systems, Mechanisms, and Assemblies of the Automobile	50
4. Structure of the Electric Equipment of the Automobile ...	8
5. Special Structural Characteristics of Russian-Built Vehicles of Increased Terrain Capacity	8
6. Metals and other Material Used in Automobile Repairs	4
7. Brief Information concerning the Processing of Metals ...	4
8. Organization of the Work and the Place of Work.....	4
9. Work of the Fitter and Mechanic	30
10. Basic Principles of Automobile Repairs	4
11. Preparing the Automobile and its Assemblies for Repairs.	4
12. The Technology of Repairs and Reconditioning of Individual Parts of the Automobile	35
13. Assembly, Finishing, and Testing of the Automobile and its Assemblies after the Completion of Repairs	16
14. Servicing Storage Batteries	2

TOTAL: 175

SUBJECT 1: HISTORY OF THE PROGRESS OF SOVIET AUTOMOBILE INDUSTRY

The history of invention and creation of automobiles. The part played
 scientists
 by Russian ~~inventors~~ in the invention of automobiles and tractors (Polsunov,

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Gusev, Sherepanov, Putilov, and Kholmov).

The development of Soviet automobile construction. The parts played by Lenin and Stalin in creating a Soviet motor tractor industry. Starting the Gorki and Moscow automobile factories.

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Basic missions of the post-war plan for establishment and development of a Russian national economy in the field of automobile transportation.

Basic tendencies in subsequent work in perfecting Soviet automobiles.

SUBJECT 2: THE STRUCTURE OF THE AUTOMOBILE (TRACTOR)

The subject matter is the same as stated for Subject 1 of this program for improving the capabilities of the drivers of combat, construction, ^{work,} and transport automobiles and tractors.

SUBJECT 3: STRUCTURE, FUNCTIONING, MALFUNCTIONING, AND ADJUSTMENT OF SYSTEMS, MECHANISMS, AND ASSEMBLIES OF THE AUTOMOBILE

The subject matter is the same as No. 2, 3, 4, 5, 6, and 7 (except Exercise 1, Subject 7) of the training program for combat, construction work, and transport motor vehicles and tractors.

SUBJECT 4: STRUCTURE OF THE ELECTRIC EQUIPMENT OF THE AUTOMOBILE

Exercise 1. The position of assemblies and devices of the electric equipment of the automobile. Sources of current: storage batteries, generators, and relay-regulators.

Exercise 2. Consumers of current: starters, signals, lighting devices. The system of ignition. Safety, control devices, coupling boxes, switches, and the wiring system.

Exercise 3. Electric circuits: starter switch, source of current for the starter, accumulator charges. General diagram of the electric equipment.

SUBJECT 5: SPECIAL STRUCTURAL CHARACTERISTICS OF RUSSIAN-BUILT VEHICLES OF INCREASED TERRAIN CAPACITY

Exercise 1. Special structural characteristics of the motor, the cooling system, lubrication, current supply. System of ignition, and electrical equipment.

Structure of the power transmission. Distributor, cardan transmission. Reduction gear. Main transmission and differential. Main clutch, side clutch, and side transmission.

Exercise 2. Special structural characteristics of the running gear of the

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~~Structure~~ of automobiles and tractors: forward and rear bridge, suspensions, shock-absorbers, wheels, and tires; steering mechanisms. Structure of the hydraulic transmission. Structure and regulation of brakes. Defects of the brake, and their correction.

Page 61:**SUBJECT 6: METALS AND OTHER MATERIAL USED IN AUTOMOBILE REPAIRS**

Exercise 1. The subject matter is the same as for Exercise 5, Subject 10, for General Assembly Mechanics and Assembly Unit Specialists (Tank Force).

Exercise 2. Basic properties of metals. The distinction between ferrous and non-ferrous metals. Comparison of the properties of cast iron and steel. Kinds of cast iron and their properties.

Exercise 3. Carbon steels and alloy steels. Notions concerning methods of producing steel. Notions concerning modification of the properties of steel by addition of rare metals. Individual parts of the automobile; making these parts from carbon steel and from alloy steel. Tool steels. Brands of steel according to the all-union standard.

Exercise 4. Non-ferrous metals, ~~nickel alloys~~ ^{sinters,} and their basic properties. Solders and their basic properties. Using unsuitable parts as metal for the making of new parts.

SUBJECT 7: BRIEF INFORMATION CONCERNING THE PROCESSING OF METALS

Exercise 1. Basic methods of processing metals. Notions concerning castings and the properties of metal castings. Principal types of mechanical processing of metals. Notion concerning thermic and thermo-chemical processing of metals.

Exercise 2. Importance and methods of the processes of tempering, annealing, chilling, normalization, case-hardening, and nitration. Surface treatment of metals with high-frequency currents. Individual parts of the automobile amenable to thermic processing. Practical methods of determining the quality of metals.

SUBJECT 8: ORGANIZATION OF THE WORK AND OF THE PLACE OF WORK

Exercise 1. The place of work. Intelligent organization of the place of work, and its effect upon the productiveness of labor and upon the quality of production. Types of working places: stationary and mobile. Equipment for the place of work. Lighting for the place of work, and segregation of dangerous places. The effect of adequate, high-quality lighting upon the productiveness of labor.

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Rules and methods for placing tools, devices, materials, half-finished pieces, finished articles, and technological documentation at the place of work during working hours. Organizing the work at the place of work. ^{Intensity,} ~~Intensifying~~ tempo, rhythm, regime of work and rest. Time, quality, and nature of the preparation of the place of work, its fittings and equipment. Acquaintance with the nature of working details assigned for the work, and with technological and work documentation.

Choice of a place for performing the work under field conditions. Protecting the working place from dust and precipitation. Fitting boxes and drawers for tools and standard specifications, and with mobile stands and racks. Structure of pits and trench ramps. Selection of tools and setting up hoisting devices and special stripping devices. Camouflaging of lights.

Exercise 2. Safe practices for this type of work. Types of injury and their causes. Basic measures for preventing injuries and eliminating their causes.

Safe methods of doing the work. Protective and guard structures. Choice of the pertinent type of instructions on the subject of safe practices for the various specialization.

Fire-protection measures to be observed in connection with automobile repair. Special characteristics of repairs on fuel tanks. Rules for use of the fire-fighting equipment in putting out fires.

SUBJECT 9: WORK OF THE FITTER AND MECHANIC

Exercise 1. Fundamentals of the work of the fitter and mechanic. Basic equipment ^{and tools} ~~for the work of the fitter and mechanic~~. Tools and devices for setting the job, how to use, handle, and store them.

Exercise 2. Fitter's construction work. Importance and uses of this type of work, instruments and tools, methods of procedure. Rules for safe practices in fitter's construction work. Cutting steel along a demarcation line by using a chisel. Sharpening the chisel.

Exercise 3. Filing off individual parts, and the purpose and scope of this method. Files and the materials used in making them. Classification of files. Choosing the file in accordance with the nature of the processing and the material of which the part is made. Care and storage of the files. Methods of filing. Proper methods of using the tools. Checking and measuring devices for the work of filing. Safe practices

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Rules and methods for placing tools, devices, materials, half-finished pieces, finished articles, and technological documentation at the place of work during working hours. Organizing the work at the place of work. ~~Intensifying~~ Intensity, tempo, rhythm, regime of work and rest. Time, quality, and nature of the preparation of the place of work, its fittings and equipment. Acquaintance with the nature of working details assigned for the work, and with technological and work documentation.

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to be observed in the work of filing.

Exercise 4: Filing the surface of a half-finished piece of steel, using the bastard file with a ruler. Filing two surfaces with the ruler. Filing out holes.

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Filing sheet-metal material along curved contours, following demarcation lines.

Exercise 5. Cutting with a fret-saw, and the range of applicability of this method. Cutting circular steel of a thickness of 10-15 mm. Cutting strip or bar iron (horizontally and vertically).

Exercise 6. Grinding. Grinding of valves, stop-cocks, and nipples. Grinding valves. Preparation of grinding paste.

Exercise 7. Drilling holes. Choice of drills for clear holes and threaded holes. Fastening the drill and the chuck in the hand drill. Prick-punching the center of a hole. Drilling with the hand drill.

Exercise 8. Cutting threads with screw taps and with screw dies.

Exercise 9. Dressing individual parts. Cleaning individual parts and standards to remove rust. Correcting thread on bolts, pins, and nuts with the aid of irregular files and scrapers. Removal of threading.

Exercise 10. Cutting out strips and discs of various dimensions. Punching and finishing holes. Cutting out paper patterns along the contours of an individual part.

Exercise 11. Beating out cans and sleeves (pipe). Cutting off rivets and pricking out cans. Pricking out sleeves (pipe). Arranging sleeves and cans. Riveting.

Exercise 12. Work on copper and tin. Soldering with weak solder. Adjusting and lighting the soldering lamp. Warming up and care of the soldering iron. Preparation and care of the surfaces to be soldered. Soldering with soft solder and with tin. Radiator repairs. Repairs on fenders.

Exercise 13. Combined jobs. Work on combined assembly and fitting jobs.

SUBJECT 10: BASIC PRINCIPLES OF AUTOMOBILE REPAIRS

Exercise 1. Role and importance of the various means of automobile repair. History of the development of automobile repairs. Priority and the leading part of Soviet science and technology in the field of automobile repairs. Achievements of the repair services in the way of organization and technology of automobile repairs during the Great War, and perspectives of progress in this work.

Exercise 2. Defects of individual parts, minor or major assemblies, and automo-

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biles; reasons for the occurrence of defects, their external manifestations, and determining the means of ~~reparating~~ ^{determining} them. Wearing out of parts, and the indications thereof. Classification of different types of wear: according to their causes, according to their rapidity of development, and according to their physical extent.

Page 64:Exercise 3. Organizational and technical fundamentals of automobile repair.

System of automobile repair. Types of repair: ordinary, intermediate, and heavy repairs. Methods of repair: by individual parts and by assemblies. Conclusions based on the method of repairing by assemblies as ~~practiced~~ ^{practiced} during the Great War and during present times. Methods of automobile repairs.

SUBJECT 11: PREPARING THE AUTOMOBILE AND ITS ASSEMBLIES FOR REPAIRS

Exercise 1. Preparing the automobile and its assemblies for transfer to a repair shop. Preparing documents for automobiles and assemblies to be transferred for repairs. Technical requirements for receiving automobiles and assemblies for repairs. Proper classification of automobiles and assemblies admitted for repairs. Storage of automobiles and assemblies awaiting repairs.

Exercise 2. Washing the automobile and assemblies before disassembly. Methods of organizing the disassembly of automobiles and assemblies. Sequences to be observed in disassembling an automobile and in breaking down the assemblies into minor assemblies and individual parts. Standards for the amount of time allotted to the work of disassembling an automobile and taking assemblies apart. Disassembling an automobile and breaking down its assemblies into minor assemblies and individual parts. Methods of cleaning individual parts of the automobile and removing the grease.

SUBJECT 12: THE TECHNOLOGY OF REPAIRS AND RECONDITIONING OF INDIVIDUAL PARTS OF THE AUTOMOBILE

Exercise 1. Changes in the position, dimensions, and shape of individual parts of the automobile as result of wear or damage factors. Methods of obtaining proper fitting of individual parts by means of regulation, turning, plastic changes in form, adoption of repair dimensions.

Exercise 2. Methods for restoring, partially or completely, the dimensions of an individual part: supplementary repair parts; welding and soldering; electro-plating of metal parts and metal plating by means of metallization (spraying). Methods of removing cracks and dents.

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Exercise 3. To obtain restoration of proper fitting and shape of an individual part by adoption of repair dimensions: the importance and nature of repair ~~size~~ dimensions and types of repair dimensions.

Exercise 4. Methods to restore fitting, dimensions, and shape of an individual part by means of welding. Advances achieved by Russian and Soviet scientists (Bernados, Slavyanov, Patton) in inventing and perfecting electric-arc welding. Electric arc welding.

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Exercise 5. Acetylene-oxygen welding. Electro-plating of metals. The method of metalization.

Exercise 6. Classification of technological processes. Bases and fundamentals applicable to the treatment of individual parts. Setting up a sequence of operations and the transition from one operation to another. Allowances of time between operations. Permissible variations in the amount of time allowed for each operation, and their adjustment while the repair work on an individual part is in progress. Equipment, devices, working tools, technical-economic criteria as factors in adjusting the method and means of repairs on individual automobile parts.

Exercise 7. The structure of drill-bore stands (U-1-2h, TSE-7, RSE-7).

Exercise 8. Repairs on the cylinder block. Repairs on the face of the cylinder, according to the method of repair dimensions. Coarse and fine grinding of cylinders.

Exercise 9. Repairs on the crankshaft, and on the crankshaft and connecting rod bearings of the motor. Re-babbiting of bearings boring them. Special characteristics of repairs on thin-walled bushings.

Exercise 10. Repairs and reconditioning of valves. Standard time periods for repairs on individual parts of the motor.

Exercise 11. Repairs on parts of the transmission box and the cardan shaft.

Exercise 12. Defects and repairs of individual parts of the rear and forward bridges. Defects and repairs of individual parts of the steering gear.

Exercise 13. Making new parts.

**SUBJECT 13: ASSEMBLY, FINISHING, AND TESTING OF THE AUTOMOBILE
AND ITS ASSEMBLIES AFTER THE COMPLETION OF REPAIRS**

Exercise 1. Methods of organizing the assembly work: the stationary method and the assembly line method. The advantages of the assembly line method as the most ef-

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Effective method of organizing production. Experience derived from use of the assembly line method. Mechanization of the assembly work. Nature of the process of grouping individual parts in units. Work of adjustment in grouping the parts into units. General scheme of the technological process of assembling an automobile and its various individual assemblies.

Exercise 2. The technological process of assembling a motor. The equipment, devices, and tools used for the purpose. Technical specifications for the assembly of motors GAZ-51 and ZIS-120.

Exercise 3. Testing the motor: cold running, hot running, and testing with measurements of power and of fuel consumed. Technical specifications for accepting delivery of a motor.

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Exercise 4. Assembly, regulation, and testing: transmission case, drive bridges, and steering assembly. Technical specifications for assembly, regulation, and testing.

SUBJECT 11: SERVICING STORAGE BATTERIES

Basic requirements for the servicing of storage batteries: cleanliness of the storage battery; cleanliness of the openings and stoppers; maintaining the electrolyte at the proper level; permissible rates of discharge from the storage battery; the proper time for charging the battery.

ELECTRIC AND GAS WELDER

Purpose of Training. To teach proper ways of doing the welding work in automobile and tank repairs.

DIRECTIONS AS TO METHOD

The training for electric and gas welders must be based upon practical demonstrations of the technology of conducting the work of gas welding and electric welding.

As the work of welding is being done, practical demonstrations must be given on individual work pieces, of making repairs for each of the most characteristic types of damage.

The instruction in welding must be started with some simple welding process, gradually advancing thereafter to the more difficult processes (from the conditions that prevail in a stationary shop to the conditions to be encountered by the welders

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under simulated field conditions); and the work must be done immediately on combat material.

List of Subjects and Time spent on each

Designation of Subjects

Number of Hours

1. Basic Principles of the Organization and Technology of Military Repairs on Tanks (Automobiles)	2
2. Mobile Repair Equipment	2
3. Materials used in Tank (Automobile) Repairs	10
4. Organizing the Work and the Place of Work	10
5. Work of the Fitter and Mechanic	10
6. The Electric Arc Method of Welding	10
7. The Electric Arc and its Properties	4
8. Electrodes and their Coatings	4
9. Machines and Apparatus with Direct and Alternating Current for Electric Arc Welding	8
10. Strain and Internal Pressure in Welding	4
11. Practical Work in Welding	40
12. Welding Cast Iron	12
13. Fusing Hard Alloys	6
14. Fundamentals of Resistance Welding	2
15. Gas Welding and Cutting	22
16. Check on the Quality of the Welding	3
17. Grouping the Practical Work for Welding	26

TOTAL 175

SUBJECT 1: BASIC PRINCIPLES OF THE ORGANIZATION AND TECHNOLOGY OF MILITARY REPAIRS ON TANKS (AUTOMOBILES)

The subject matter is the same as indicated under Subject 9 for General Assembly Mechanics and Assembly-Unit Specialists (Tank Force).

SUBJECT 2: MOBILE REPAIR EQUIPMENT

The subject matter is the same as indicated under Subject 9, Exercise 8, for General Assembly Mechanics and Assembly-Unit Specialists (Tank Force).

SUBJECT 3: MATERIALS USED IN TANK (AUTOMOBILE) REPAIRS

The subject matter is the same as indicated under Subject 6 for General Assembly Mechanics and Assembly-Unit Specialists (Tank Force).

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SUBJECT 4: ORGANIZING THE WORK AND THE PLACE OF WORK

The subject matter is the same as indicated under Subject 6 for General Assembly Mechanic and Assembly-Unit Specialist (Tank Force).

SUBJECT 5: WORK OF THE FITTER AND MECHANIC

The subject matter is the same as indicated under Subject 9 for General Assembly Mechanic and Assembly-Unit Specialist (Tank Force).

SUBJECT 6: THE ELECTRIC ARC METHOD OF WELDING

Exercise 1. The importance and nature of the welding process. The importance

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of welding work for the repairs on tanks and automobiles. Electric Arc Welding is a Russian invention (Petrov, Slavyanov). The leading part played by Russian scientists (Nikitin, Vologdin) in perfecting the technique of welding. Equipment for welding shops.

Exercise 2. Classification of the various methods of welding by heat: forge, gas, electric, and thermite welding. The principle of electric welding, and the distinction between two types of electric welding: a) electric arc welding; b) electric resistance or contact welding. A short explanation of the welding processes according to the Slavyanov method.

Exercise 3. Types of welded joints: butt-welded, lap-welded, end-to-end welded, notch-welded, (double-flanged) butt-welded, angle-welded, plug-welded. Types of welded seams. Structure and dimensions of the seam in transversal cross-section: according to the position in space -- bottom, horizontal, vertical, ceiling; according to the direction of the action of the forces -- frontal or torsional, flank, combined, slanting; according to extent and mutual position -- broken and complex, chain-type, and checker-board type.

Exercise 4. Preparing the material prior to welding. Importance of cleaning the material. Dressing the edges. Importance of the various elements of dressing. Tools used for dressing. Moving the terminals of the electrode in placing seams under various conditions. Solidity and quality of the seams as determined by the method according to which they were made. Rules for laying down multiple-layer seams. Defects of geometric form. Metallurgical and mechanical defects.

Exercise 5. Structure of welding seams. The zone of thermic influence, and the composition of the welding metal used for the seam. Manganese and its effects upon

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the properties of the metal of the seam.

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SUBJECT 7: THE ELECTRIC ARC AND ITS PROPERTIES

The nature of the arc and the conditions required to produce and maintain an arc. Physical and electric properties of the electric arc. The polarity of the arc. Current supply for the electric arc. Temperatures and the distribution of heat in the arc. The length of the arc as determined by the strength of the current. Factors that affect the stability of the welding regime. Welding properties of the electric arc. The influence exerted by the chemical composition of the electrodes and of the coatings upon the stability of the arc and upon the distribution of its heat.

SUBJECT 8: ELECTRODES AND THEIR COATINGS

Exercise 1. Classification of electrodes according to the type of metal, the nature of the coating, and the purpose for which it is used. Metallic cells and

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Their coatings. Classification of coated electrodes according to their properties and according to their method of manufacture. Stabilizing, protective, and alloying electrodes. The influence exerted by the composition of the electrode wire upon the process of welding and upon the nature of the seam metal.

Exercise 2. Coatings, their purpose and use. The influence of the various components of the coating upon stabilization of the arc, the distribution of heat within the arc, the formation of clinkers, and the quality of the molten metal. The composition of the coatings used for various purposes. Coatings: anti-clinker, anti-gas-formation, anti-gas-and-clinker, ionizing. Chalky coatings. Methods of preparing coatings and putting them on the electrode. Angular electrodes.

SUBJECT 9: MACHINES AND APPARATUS WITH DIRECT AND ALTERNATING CURRENT FOR ELECTRIC ARC WELDING

Exercise 1. Classification of machines and apparatus. High levels of tension considered in relation to safe-practice conditions. Single-phase direct-current machines. Diagram showing the underlying principles. Interaction between the currents of the induction coils and the armature reactions. The method of regulating by shifts of the brushes and with the aid of rheostats in the induction circuit.

Exercise 2. General principles, structure, theoretical data, and operating characteristics of the machines SMG, SUG, SAK, their weight, their dimensions, power, coefficient of useful action. Servicing direct-current welding machines, and rules for the care of this type of machines.

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Exercise 3. Alternating-current welding apparatus. The principle of functioning of transformers. Regulating the current. External characteristics of the system. The structure of the transformer. Theoretical and operational data for transformers. Devices, accessories, tools, electrode-clamps; their structure, and their shortcomings. Conditions favorable to economical use of the electrodes.

SUBJECT 10: STRAIN AND INTERNAL PRESSURE IN WELDING

Types of pressure in the material. Permissible strains and reserve of stability. Permissible strains in the welding seam when the welding is done with electrodes with higher chally coating and high-grade covering. Functioning and connecting seams. Uneven heating as a cause of internal strains. Measures to be

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taken to keep down deformations: tack welds, and placing seams by sectors. The sequence observed in placing seams. Measures taken to keep down internal strains: unrolling, pressing each layer.

SUBJECT 11: PRACTICAL WORK IN WELDING

Exercise 1. Welding seam on a standard shaft, in the direction from left to right, from right to left, away from the worker, and toward the worker. The same, on an enlarged shaft. Regulating the force of the current according to the diameter of the electrode. Welding seam on shafts by movement upward and from left to right on the plates set up at an angle of 45° toward the table. Welding seam of shafts on a vertical plane in the direction from left to right and upward from below. Welding seam on a shaft of standard width without heaping up and undercutting with short arc. Welding in a low position.

Exercise 2. ^{Butt} ~~(Welding)~~ Assembly with proper setting of clearances. Placing the tack welds. ^{various} Welding plates of 4 and 6 mm. thickness. Putting on a standard single-layer seam with even welding penetration without undercutting the edge lines. Butt welding with U-shaped division of the edges. Welding of plates 6-10 mm. in thickness. Choice of an electrode of the required diameter, depending on the division ^{the built up} and layer of the metal of the seam, and choice of the force of current according to the diameter of the electrode. Using kerosene to adjust the compactness of the seam.

Exercise 3. Lap welding, using a single-layer seam and a double-layer seam. End-to-end welding of two plates of 5 mm. thickness, without chamfering the ^{wall of the} edge of the stamp.

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Independent choice of the diameter of the electrode and the force of current for various thicknesses of the metal and various layers of the seam. Exercises in moving the electrode.

Exercise 4. Overhead seams. Special types of welding. ^{Butt} Welding of slight thickness ^{or} (from 1.5 to 5 mm.), lap welding, end-to-end welding in low position. Welding of all types of joints with a compact seam, without burning through (electrode -- 2-2.25 mm.).

Exercise 5. Welding with electrodes with high-quality ^{coating.} ~~plating~~ Electrodes for the welding of alloyed steels. Thermal regimes for welding. The advantages of forming fissures and ~~the~~ improvement of the qualities of the seams.

Page 71: Exercise 6. The use of special electrodes for welding shafts on plates of steel of the chromium-nickel type. Special characteristics of the trajectory along which the electrode is moved in welding on a widened shaft. Multiple layer welding with a finishing annealing roller. Welding to remove faults of the steel.

SUBJECT 12: WELDING CAST IRON

Exercise 1. The welding properties of gray and white cast iron. Types of cast iron that cannot be welded. Hot and cold welding of cast iron. Choice of the method of welding cast iron. Cold welding of cast iron with low-carbon steel electrodes, of ~~with~~ cast-iron electrodes with special coating. Preparation while the welding is in progress, solidity and density of the joining. Fusing agents used in the cold welding of cast iron, and their designations ~~and~~ function. Typical defects of cold welding.

Exercise 2. Hot welding of cast iron. Mechanical preparation for the welding. Shaping and shaping materials. Methods of heating up and conducting the welding process. Cooling off the ~~welded~~ article. Solidity and typical defects of hot welding. Differences between the metallurgical process of cold and hot welding. The semi-hot welding of cast iron.

Exercise 3. Cold welding of cast iron with steel electrodes with ~~steel~~ ^{steel} pegs. Cold welding of cast iron with cast iron electrodes with special coating.

Exercise 4. Cold welding of cast iron with steel electrodes with special ~~welding~~ coating, which feeds cast iron into the welding. Hot welding of cast iron with cast iron electrodes.

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Page 71: (cont'd)SUBJECT 13: FUSING HARD ALLOYS

Exercise 1. Distinguishing characteristics of hard alloys. Molten hard alloys. Baked-and-fused alloys. Powdery-type hard alloys. The technique of fusing and welding various hard alloys.

Exercise 2. Distinguishing welding characteristics of non-ferrous metals. The welding of copper, bronze, and aluminum with carbon and metallic electrodes. The composition of metallic electrodes and metallic admixtures. Coating; fusing agents. Preparing individual pieces for welding. The technique of welding; the work regime. Methods of work. Safe practice rules. The quality of the welding.

Exercise 3. Welding bronze and brass with heating in the furnace. Welding aluminum with carbon electrodes, using fusing agents.

Page 72:SUBJECT 14: FUNDAMENTALS OF RESISTANCE WELDING

The physical basis of resistance welding. Different forms of contact welding: butt welding, spot welding, and roller welding.

SUBJECT 15: GAS WELDING AND CUTTING

Exercise 1. The nature of the process of gas welding, and the range of its applicability. Gases and hot liquids used in welding; their properties, sources of supply, storage, and use. The effectiveness of various methods of gas welding. Composition of the hot gas mixtures. The physico-chemical processes that occur in the gas-welding flame. The metallurgical processes that occur in gas welding. Shrinking and shrinking pressures. The nature of the process of making welding seams and their purpose. The difference between gas welding and electric arc welding of metals. The influence exerted by the chemical composition of the hot mixture and the annealing metal upon the quality of the welding seam. The part played by fusing-mixtures and annealing substances in the process of gas welding.

Exercise 2. The nature of the process of gas-weld cutting, and its differences from other methods of cutting metal. Metals that cannot be cut by the gas method. The influence of gas cutting upon the physical and mechanical properties of the metals. The clean cross-section obtaining by gas-cutting. The range of applicability of gas-cutting. The technique of safe practices.

Exercise 3. The apparatus used in gas welding and gas cutting. The gas generators

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used to obtain acetylene, the method of functioning, and the technical production data. Supplementary apparatus and equipment. Cylinders for the oxygen. Reductors and their functioning, and possible malfunctionings. Apparatus for liquid oxygen. Burners for the welding; their construction, functioning, and productivity. The instrument used for gas cutting. Structure, functioning, and operation of the gas-line cutter. Safe practices in operating the apparatus.

Exercise 4. The technology of gas welding and cutting. Preparing the article for welding. The technique of performing gas welding on carbon steels and alloyed steels, cast iron, and non-ferrous metals. Setting the flame of the burner, its position while welding, and its direction of movement. Expenditure of gas and productivity under the various methods of gas welding. Intelligent organization of the working place for gas welding. Expenditure of gas and productivity in gas cutting.

Exercise 5. Practice with the burner. Joining the flexible pipes. Choice of the ord pieces; setting the burner for three types of flame on the metal. Fusing a shaft to a plate by the right-hand and left-hand methods of welding. Fusing a complex layer on a plate in low position. Welding two plates together: butt-welding, lap welding, end-to-end welding, and angular juncture. Placing a layer on a vertical plate by moving the burner upward from below. Welding two vertical plates together by moving the burner upward from below: butt-welding, end-to-end welding, others. Welding up openings of a diameter up to 150 mm. Welding cast iron pieces with brass and copper plates with heating.

Exercise 6. Acetylene-oxygen cutting of plates; removing chamferings on the edges. Kerosene-benzine-oxygen cutting of sheets, removal of chamferings, cutting in of holes.

SUBJECT 16: CHECK ON THE QUALITY OF THE WELDING

Solidity and quality of the seams as determined by their location and by the manner in which they were made. Defects of the welding; their various types and causes. Methods of checking and detecting defects by means of measurement, inspection, undercutting, drilling, trying air pressure, and kerosene. Methods of correcting defects and measures for preventing them.

SUBJECT 17: GROUPING THE PRACTICAL WORK FOR WELDING

Work on gas welding and gas cutting of medium complexity. Welding tanks; weld-

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ing end pieces on conduit tubes. Welding teeth on tooth-gear. Welding holes closed in cast iron parts.

V U L C A N I Z E R S

Purpose of Training. 1. To study the equipment, tools, and materials used in repairs on automobile tires.

2. To teach the men how to make high-quality repairs intelligently on jobs done in casings and inner tubes, both in the shop and under field conditions.

INDICATIONS AS TO METHOD

The training will be conducted in the shop of a unit that has the required specialists and equipment for vulcanization of tires.

If a military unit is stationed at or near the location of the auto-repair establishment of the okrug (administrative district), it may be desirable to have the training conducted at an okrug establishment.

Study of the equipment, devices, and tools must be conducted with the aid of specialists of such equipment, etc., either in the shop or in the class room.

Page 74: In the course of the instruction one must explain the purposes of the tools and equipment, and show methods of using them in making repairs.

Subject 7 is studied by practical work in the shop, having each soldier undertake repairs jobs independently, under the supervision and control of the instructors.

In the course of the instruction one must explain to the students the influence exerted by the following factors upon the quality of the work: neat removal of the damaged pieces of the covering, of the preparation and putting on of the patch, and of the temperature regime.

Subject 5: ("Structure and Functioning of Automobile Tires") and Subject 8, "Proper Use of Automobile Tires," must be taught directly on automobiles that have defects that affect the wear on the tires, and tires where the outer jacket is worn out in an irregular manner, or which have mechanical damage and lowered pressure.

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List of Subject and of Time spent on each

DESIGNATION OF SUBJECTS	Number of Hours
1. History of the Development of the Soviet Automobile Industry Making and	2
2. Materials used in Preparing ^{Repairing} Tires and Inner Tubes from Repairs	18
3. Organization of the Work and of the Working Place	5
4. The Work of the Mechanic and Fitter	6
5. Structure and Functioning of Automobile Tires ...	20
6. Equipment, Devices, and Tools used in Repairs on Casings and Inner Tubes	20
7. Repairs on Casings and Inner Tubes	86
8. Proper Use of Automobile Tires	4
9. The Equipment of Mobile Repair Facilities	24
TOTAL:	175

SUBJECT 1: HISTORY OF THE DEVELOPMENT OF THE SOVIET AUTOMOBILE INDUSTRY

The subject matter is the same as that indicated for Subject 1, for General Assembly Mechanics and Assembly Unit Specialists (for Tank Force).

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SUBJECT 2: MATERIALS USED IN MAKING AND REPAIRING TIRES AND ~~XXXXXX~~ TUBES

Exercise 1. Rubber. Notions on the subject of rubber. The leading position held by the Soviet Union in the production of synthetic rubber. Natural and synthetic rubber, Soviet plants from which rubber can be made. The importance of developing in the Soviet Union an independent raw material basis for the rubber industry. The production of rubber from rubber plants, and its subsequent processing. The production of synthetic rubber. Rubber for use in repairs. Rubber-treated fabrics.

Exercise 2. Rubber cement, its composition, properties, and use. The types of benzene used for tire repairs, and their technical properties.

Exercise 3. Understanding of the rubber mixture and its preparation. Sulphur, and the part it plays in vulcanisation. Fillers as a means of reducing the cost of rubber. The most widely used fillers: chalk, caolin. Strengtheners and their purpose. The most widely used strengtheners: carbon black, zinc oxide, magnesium carbonate. Types of carbon black, and means of obtaining it.

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Exercise 4. Softeners and their role in in the process of preparing the rubber mixture. Coloring matter and its purpose. Understanding of the procedure of preparing a recipe for the rubber mixture. Materials used in the manufacture of automobile tire casings and inner tubes. Methods of estimating the quality of rubber mixtures. Types of defect in the repair materials. Norms for the expenditure of materials. Economy in the use of materials in making repairs.

SUBJECT 3: ORGANIZATION OF THE WORK AND OF THE WORKING PLACE

The subject matter is the same as under Subject 8 for the training of General Assembly Mechanics and Assembly Unit Specialists (Automobiles).

SUBJECT 4: THE WORK OF THE MECHANIC AND FITTER

The subject matter is the same as for Exercises 1, 5, and 6 of Subject 9 for the training of General Assembly Mechanics and Assembly Unit Specialists (Automobiles).

SUBJECT 5: STRUCTURE AND FUNCTIONING OF AUTOMOBILE TIRES

Exercise 1. The manufacture of tire casings and tubes. The demands to be made upon automobile tires. Types of tire and their uses. Pneumatic rubber tires and their various advantages. Classification of pneumatic tires according to their internal pressure and the size of their profile. Methods of indicating the dimensions of tires (width of profile and diameter of the rim). Dimensions of the tires of Russian production.

Exercise 2. The automobile tire casing and its parts. Purpose and functioning of the casing, the protecting layer, the breaker, and the side wall.

Exercise 3. Types of tire valves, and their structure. Types of gate valve. The functioning of the valve. Technical demands to be made upon a new casing and inner tube. Deformations of various types of tires under load as the automobile moves under various conditions. The functioning of the tire under various types of road conditions: loads upon the tire, centrifugal force, functioning of the tire in passing over obstacles and around turns of the road.

Exercise 4. Normal wear of the tire casing. Defects of the mechanisms of the automobile as causes of undue wear on the casings. The effects of improper driving upon the wear on the casings. The effect of the amount of air pressure in the tire upon wear on the casings.

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Exercise 5. Defects and damage of tires. Mechanical damage to casing and tube. Blow-out and separation of layers of the casing, peeling off of protecting layer and side walls, destruction from the action of oil and gasoline). Manufacturing and operational defects of inner tube and casing, their causes and means of correction.

SUBJECT 6: EQUIPMENT, DEVICES, AND TOOLS USED IN REPAIRS ON CASINGS AND INNER TUBES

Exercise 1. Stationary vulcanizing apparatus (GARO) for vulcanizing casings and inner tubes. Technical characteristics of the apparatus. Setting up and operating the apparatus.

Exercise 2. Vulcanizing apparatus for inner tubes. Molds for vulcanization of casings.

Exercise 3. Spreaders: hydraulic, and pneumatic.

Exercise 4. Measuring devices: manometers and thermometers. Types of buffing stands and their structure. Drying chambers, working tables, and racks.

Exercise 5. Tools: shears, knives, probes, hooks for picking out cord threads, brushes, cutting pliers, cross bars, rollers. The proper way to use these tools and take care of them.

SUBJECT 7: REPAIRS ON CASINGS AND INNER TUBES

Exercise 1. Basic notions concerning the technological process of repairs on casing and inner tubes. The casing and tire repair operations comprised in the technological process of automobile tire repairs. Organizing the tire repair shop or department.

Exercise 2. Technical specifications concerning casings and tubes to be considered in need of repairs. Technical conditions on the casing that call for making cuts. The preliminary drying. Removal of damaged sections, by cutting them out or by means of deep buffing. Smearing on the rubber cement, and drying.

Exercise 3. Preparing cord patches. The purpose of the patches; the tools required; how to perform the operation; rules for smearing and drying. Sealing up the damaged spot by putting on a patch: choice of the patch according to the dimensions of the damaged area; rules for putting on the patch; the process of repair. Excising the damaged areas. Patterning the damaged spot by fitting a cone into it; and rules for filling out the excised place with cord. Methods of preparing a matrix to determine the pattern of the protective layer at the point where repairs are being made on a casing.

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Exercise 4. The making of cuffs to repair casings: trimming the edges, peeling off the protecting layer, and separating the layers of the casing, laying out and opening the cuff, bevelling the edges of the cuff, buffing the cuff. Method of covering damaged places by putting on a cuff. Special characteristics of repairs on the side walls. Section-by-section method of making repairs on a casing.

Exercise 5. Vulcanizing casings. The nature of the process of vulcanization, and changes undergone by the properties of the rubber as result of vulcanization. Understanding the differences between vulcanization, revulcanization, and incomplete vulcanization. The time allowed for vulcanization, according to the thickness of the vulcanized layer, the composition of the rubber, and the vulcanization temperature. The importance of pressure in vulcanization. The vulcanization regime. The working process in the vulcanizing apparatus, check and control of temperatures on the vulcanizing apparatus, the struggle against condensation of steam. Defects in vulcanization and the means of eliminating them.

Exercise 6. Repairs and vulcanization of inner tubes. Inspection of inner tubes, and the method of checking them with air pressure in a water bath. Cutting out and buffing the damaged places. Washing and coating the damaged spots, gluing on and rolling the patches. Special characteristics of repairs of perforations. Insertion of the running patch. Splicing. Replacing valves. Valve repairs.

Exercise 7. Inspection and sorting of fully repaired casings and inner tubes. Method for inspecting casings and inner tubes to determine the quality of the repairs. Use of the knives, carborundum discs, and scapstones. Defects, causes of their appearance, and methods of removing them.

Exercise 8. Methods of putting on and taking off tires. Methods and rules for putting on and taking off tires on various types of rim (flat and deep). Pumping up tires. Checking the pressure. Equipment and tools for this work.

SUBJECT 8: PROPER USE OF AUTOMOBILE TIRES

Exercise 1. Types and dimensions of automobile tires. Basic operational and technical qualities of tires: adherence to the surface of the road; passability of the tires; hemetic and impact resistance of the tires; durability of the casings and inner tubes; resistance to heat and low temperatures. The tire's capacity for steady-
ing the automobile. Care and storage of the tires.

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Exercise 2. Check on the pressure, and periodic inspection of the tires. Arrangement of the tires on the wheel according to the condition of the tire. Precautionary servicing of the tires. Tightening the tires according to the make of car and according to the type of driver. Keeping account of the work of the tires. Keeping the tires in the storeroom for casings and inner tubes. Equipment for the store-room.

SUBJECT 9: THE EQUIPMENT OF MOBILE REPAIR FACILITIES

The tools and equipment of the vulcanizing shop, and the places where this equipment is kept. Preparing tools and other equipment for starting the work. Organizing the repairs on casings and inner tubes under field conditions.

STORE-ROOM HANDS FOR STORE-ROOMS CONTAINING COMBAT TANK AND AUTOMOBILE PROPERTY

Learn

Purpose of Training. 1. To learn procedures for receiving, issuing, storing, and protecting combat tank and automobile property in the unit (or large unit).

2. To teach the men properly to do their work in a store-room for combat tank and automobile property, and intelligently to take care of the records and the accounting.

INDICATIONS AS TO METHOD

Subjects 12, 13, 14, and 15 are studied in a practical manner in the store-room by carrying on independently the work of receiving and issuing property, making out the necessary documents, and keeping records and account under the direct observation of the supervisors in charge.

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In the study of theoretical problems extensive use must be made of visual aids (diagrams, posters) and blank forms of the accounting documents.

In all of the exercises one must develop in the student a protective attitude toward the property such as befits the socialistic nature of the Soviet State.

List of Subjects and Time Spent on each

Designation of Subjects	Number of Hours
1. The Duties of the Store-Room Hand	4
2. Organizing and Equipping a Store-Room for Combat Tank and Automobile Property	16
3. Basic Principles of Store-Room Management	10
4. The Procedures for Receiving Combat Tanks and Automobile Property	16

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Designation of Subjects	Number of Hours
5. The Procedures of for Issuing Combat Tanks and Automobile Property	18
6. Storage of Combat Tanks and Automobile Property, and Methods of Protecting it from Damage	12
7. Distribution and Storage of Combat Tank and Automobile Property in the Store-Room	14
8. Special Requirements for Storing Combat Tanks and Automobile Property during the Winter Months	6
9. Special Requirements for the Storage of Rubber Articles, Lacquers, Paints, Chemicals, and Acids.....	8
10. Rules for the Use of Catalogues	10
11. Tools and Equipment for Motor Parks.....	8
12. Safe Practices for Store-Room Work	6
13. Preparation of Documents and Keeping Records and Accounts	12
14. Treatment of Combat Tank and Automobile Property in the Store-Room	15
15. Placing Combat Tank and Automobile Property on Frames, <i>in the Rack,</i> Leases, and in Piles	12
16. The Work of Loading and Unloading Property	6
TOTAL: 175	

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SUBJECT 1: THE DUTIES OF THE STORE-ROOM HAND

The duties of the store-room hand in receiving, storing, issuing, and release of property.

SUBJECT 2: ORGANIZING AND EQUIPPING A STORE-ROOM FOR COMBAT TANK AND AUTOMOBILE PROPERTY

Exercise 1. Purpose and administrative organization of store-rooms. Basic requirements for structure and equipment of stationary store-rooms. Equipment and maintenance of storage places. Maintenance of the grounds of the storage depot and of the open storage places.

Exercise 2. Structure and equipment of store-rooms under field conditions. Maintenance of the store-rooms and of the storage grounds.

Exercise 3. Security and protection of the store-room. Fire-fighting equipment and fire-fighting measures at the store-room. The procedure for admitting property to the store-room. General rules for distributing, depositing, and storing property.

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SUBJECT 3: BASIC PRINCIPLES OF STORE-ROOM MANAGEMENT

Exercise 1. The procedure of storing. Recording, accounting, and listing of material values in the store-room.

Exercise 2. The procedure of taking inventory of the property on January 1st and July 1st each year. Preparing the documents of the inventory.

SUBJECT 4: THE PROCEDURES FOR RECEIVING COMBAT TANK AND AUTO-MOBILE PROPERTY

Exercise 1. The procedures for receiving the property into the store-room. Rules for determining under which category the property belongs. Types and kinds of property groups, their designations, and the manner in which they are grouped together, the number of places, and the weight. The responsibilities of those in charge of the store-room with respect to the reception of property.

Exercise 2. Making out stock cards and documentation for the property accepted.

SUBJECT 5: THE PROCEDURES FOR ISSUING COMBAT TANK AND AUTOMOBILE PROPERTY

Exercise 1. The procedures for releasing property from the store-room. Selection, storing loose, packing, marking, issuing and forwarding property. Responsibilities of those in charge of the store-room for proper issue and forwarding of property.

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Exercise 2. Making out the documents for issued property.

SUBJECT 6: STORAGE OF COMBAT TANK AND AUTOMOBILE PROPERTY, AND METHODS OF PROTECTING IT FROM DAMAGE

Exercise 1. Rules and conditions for storing, keeping, and treating (preserving) assemblies of parts, spare-parts, repair pieces, park equipment, tools, metals, and other materials.

Exercise 2. Knowledge concerning the corrosion of metals and measures of fighting against it. Methods of cleaning metallic articles and protecting them from corrosion.

Exercise 3. Pests that cause damage to materials (cloth and fabrics; leather; wood; and so forth), and measures for use against them. Regularly planned inspections to prevent this type of damage.

SUBJECT 7: DISTRIBUTION AND STORAGE OF COMBAT TANK AND AUTOMOBILE PROPERTY IN THE STORE-ROOM

Dividing up spaces and grounds of the store-room with a view to well-planned distribution and storage of the property. Distributing the property according to types,

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and makes, of automobiles, nomenclature, dimensions, and storage categories. Equipping stands, sections, and spaces for receiving the property. Basic requirements for the storage of property.

SUBJECT 8: SPECIAL REQUIREMENTS FOR STORING COMBAT TANKS AND AUTOMOBILE PROPERTY DURING THE WINTER MONTHS

Exercise 1. The influence of winter conditions on the preservation of the material.

The procedures for preparing the material for storage, and rules for storing property in the winter in unheated locations and in open spaces. Types of packing, methods of depositing and storing the property in its packing.

Exercise 2. Fire-protection measures while preparing storage spaces for the winter. Maintenance of the grounds and open storage places during the winter months.

SUBJECT 9: SPECIAL REQUIREMENTS FOR THE STORAGE OF RUBBER ARTICLES, LACQUERS, PAINTS, CHEMICALS, AND ACIDS

Exercise 1. The influence of atmospheric conditions on the maintenance of rubber articles. Requirements to be made of the places for storing rubber. Methods of storing rubber articles: tire casings, inner tubes for automobiles and cycles, rubber-covered rollers, individual parts made of rubber.

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Exercise 2: Special characteristics and rules affecting the storage of paints, lacquers, chemicals, and acids.

SUBJECT 10: RULES FOR THE USE OF CATALOGUES

Exercise 1. The purpose of catalogues, and the methods of using them. Listing of special parts, of parts for which no one is held accountable (model parts), and individual parts furnished by the supplying factory.

Exercise 2. Ascertaining the nomenclature numbers of the individual parts, according to the catalogues, and designation of parts according to the catalogue numbers.

Exercise 3. Segregation of parts according to the make of automobile and according to the catalogue numbers.

SUBJECT 11: TOOLS AND EQUIPMENT FOR MOTOR PARKS

Exercise 1. Purpose and general composition of the park equipment: oil-burning water heaters, welding apparatus, air-hose connection, distributing tanks for lubricants, gasoline pumps, washing machines, measuring vessels, etc.

Exercise 2. Purpose of the various tools: measuring tools, assembly tools, smith-shop tools, and so forth. Special factors affecting the storage of park tools and

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equipment.

SUBJECT 12: SAFE PRACTICES FOR STORE-ROOM WORK

Arranging the storage frames and storage spaces. Storing tank and motor-tractor property in piles and on frames. Precautionary measures for work with acids and other corrosive chemical substances. Safe practices for the work of loading and unloading, and for the work with dangerous and injurious materials. Observation of safe-practices rules at the store-rooms.

SUBJECT 13: PREPARATION OF DOCUMENTS AND KEEPING RECORDS AND ACCOUNTS

The process of making out documents for the reception and the release of combat tank and automobile property. The duties of the persons in charge with respect to records and accounting. Methods of keeping and storing records and accounting documents.

SUBJECT 14: TREATMENT OF COMBAT TANK AND AUTOMOBILE PROPERTY ON FRAMES, ON PILES, AND ON THE STORE-ROOM

Practical work in removing grease and products of corrosion from parts by mechanical and chemical means. Preparing acid, weak alkaline, and soap solutions.

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Preparation of cleansing solutions. Washing and neutralizing individual parts.

Drying out parts. Greasing and painting parts. Making use of structures and devices for handling the property.

SUBJECT 15: PLACING COMBAT TANK AND AUTOMOBILE PROPERTY ON FRAMES, IN THE PACKING, AND ON PILES

Setting down the property according to type, make of car, nomenclature, dimensions, and store-room categories. Cleaning the property and removing defects. Rules for setting down the property in its storage space.

SUBJECT 16: THE WORK OF LOADING AND UNLOADING PROPERTY

The principal types of equipment for mechanizing the store-room. Methods and rules for using collapsible jacks with block and tackle, elevating devices, roller crossbars, hoisting jacks, and so forth. Use of means of transportation within the store-room itself. Rules for safe practices in carrying on the work of the store-room.

STORE-ROOM HAND FOR ORDNANCE PROPERTY (GENERAL ORDNANCE OR ENGINEER EQUIPMENT)

Purpose of Training. 1. To teach reception, release, storage, and safe-keeping

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Designation of Subjects	Number of Hours
9. Procedures for Inspection, Technical Testing, and Assignment to Categories of Military Technical Materiel	14
10. Technical Inspection and Operating Test of Radio, Telegraph, and Telephone Apparatus	39
11. Technical Inspection and Operating Test of Technical Engineer Equipment	30
12. Technical Inspection and Check on Chemical Warfare Protective Equipment	12
TOTAL:	175

SUBJECT 1: ~~duties of the store-room hand~~
DUTIES OF THE STORE-ROOM HAND

Duties of the store-room hand in the reception, storage, issue, acceptance and release of military technical materiel; preparation of the receipt-and-expense documents, and the keeping of records and accounts.

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SUBJECT 2: EQUIPMENT FOR A STORE-ROOM OF MILITARY TECHNICAL MATERIEL, AND ITS MAINTENANCE

Exercise 1. Requirements as to structure and equipment for the store-room under special conditions. Maintenance of the store-room and its grounds.

Exercise 2. Security of the store-room. Fire-protection measures at the store-room.

SUBJECT 3: CAUSES OF SPOILING, AND REASONS FOR PROTECTING THE MILITARY TECHNICAL MATERIEL FROM SPOILING

Exercise 1. The action of moisture upon parts made of metal. Corrosion. Rules for greasing and painting articles made of metal. Nickel-plating and galvanizing of articles. Cleaning off rust.

Exercise 2. Causes of spoiling on articles made of wood. Signs of damage on articles made of wood. Precautionary measures for the protection of wooden articles. Causes of spoiling in articles made of leather (mould and insects or animals). Measures to prevent leather articles from spoiling.

Exercise 3. Reasons for spoiling of rubber articles and articles made of fabric. Precautionary measures to prevent fabrics and rubber articles from spoiling.

SUBJECT 4: STORING OF MILITARY TECHNICAL MATERIAL

Exercise 1. General requirements for storing and placing military technical materiel in the various places for storage. The procedure for storing motor vehicles, electric equipment, and electro-technical property, measuring devices and precision

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instruments, tools, and various materials.

Exercise 2. The procedure for storing signal material, engineer property, chemical warfare property, and various types of operating material.

SUBJECT 5: THE GENERAL PROCEDURE OF REQUISITIONING, READYING, RELEASING, AND RECEIVING MILITARY TECHNICAL MATERIEL. METHODS OF LISTING IT

Exercise 1. Duty orders, changes of orders, and requisitions for signal property; rules for preparing these documents; rules for forwarding such property and for receiving it from the storage depot; rules for delivering the property.

Exercise 2. The procedure for providing property independently for the unit itself; methods and standards for the issue and expenditure of property; basic data for listing property; method of listing property.

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SUBJECT 6: BASIC PRINCIPLES OF DEALING WITH MILITARY TECHNICAL MATERIEL

Duties in dealing with complex signal devices, special equipment, engineer property, and chemical warfare property.

SUBJECT 7: STORAGE OF CHEMICAL WARFARE MATERIAL AND EXPLOSIVES

Methods of storing and checking on the condition of pyrotechnical material and explosives. The structure of the storage space. Methods of destroying pyrotechnical material and explosives. Methods of admitting it to the storage spaces. Fire-protection measures.

SUBJECT 8: RECORDS AND ACCOUNTING

Exercise 1. The tasks of recording and accounting, requirements concerning record entries. The basic documents and their contents. Collated documents. Documents dealing with finances, and those dealing with materials.

Exercise 2. Notions concerning the military system of accounting for valuable materials.

Exercise 3. Problems that arise in connection with the accounting documents. Ways of recording and accounting in the store-room.

SUBJECT 9: PROCEDURES FOR INSPECTION, TECHNICAL TESTING, AND ASSIGNMENT TO CATEGORIES OF MILITARY TECHNICAL MATERIEL

Exercise 1. The purposes of inspection; time intervals between inspections; extent of the work to be done in conducting a technical inspection of the property; formulating and recording the results of the inspection.

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Exercise 2. Purposes and time intervals of technical tests of the property; general extent of the work to be done in that connection; formulating and recording the results of the testing. Segregating the property according to categories; method of assigning the property to the lower categories (3rd, 4th, and 5th).

Exercise 3. Problems that arise in connection with property turned in for repairs; making out papers for property turned in for repairs; types of repairs.

SUBJECT 10: TECHNICAL INSPECTION AND OPERATING TEST OF RADIO, TELEGRAPH, AND TELEPHONE APPARATUS

Exercise 1. Technical inspection and operating test of low-power radio sets.

Exercise 2. Technical inspection and operating test of intermediate and high-power radio sets.

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Exercise 3. Technical inspection and operating test of telephone equipment.

Exercise 4. Technical inspection and operating test of sources of current supply.

Exercise 5. Technical inspection of electric lights.

Exercise 6. Technical inspection and repairs of field cables.

SUBJECT 11: TECHNICAL INSPECTION AND OPERATING TEST OF TECHNICAL ENGINEER EQUIPMENT

Exercise 1. Technical inspection and operating check of mine demolition equipment.

Exercise 2. Technical inspection and operating check of wood-processing equipment.

Exercise 3. Technical inspection of river-crossing equipment.

Exercise 4. Technical inspection and operating check of agricultural machinery.

Exercise 5. Technical inspection of diving equipment.

Exercise 6. Technical inspection and operating check of mobile electric power stations.

Exercise 7. Technical inspection and operating check of bridge-building machinery.

Exercise 8. Technical inspection and operating check of field water-supply equipment.

SUBJECT 12: TECHNICAL INSPECTION AND CHECK OF CHEMICAL WARFARE PROTECTIVE EQUIPMENT

Exercise 1. Inspection and check of chemical warfare protective equipment. Determining the category to which it belongs, and the extent of repairs needed.

Exercise 2. Check on chemical warfare protective equipment for animals.

Exercise 3. Inspection and check on the functioning of sets of air-filter installations, chemical reconnaissance devices, and meteorological sets.

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Exercise 4: Determining the effectiveness of decontaminating substances and the proper functioning of decontaminating devices.

Exercise 5: Determining the effectiveness of smoke screen equipment.

STORE ROOM HANDS FOR ORDNANCE PROPERTY (ARTILLERY AND AMMUNITION)

Purpose of Training. 1. To learn the procedures for reception, storage, protection, and release of artillery property and ammunition.

Page 88: 2. To teach the method of conducting the work of the store-room, and to form habits for the keeping of records and accounting.

INDICATIONS AS TO METHOD

The exercises for workers at the store-rooms for artillery property and ammunition must be conducted in a practical manner. All of the laboratory work must be conducted with strict observation of protective measures; and the student must make use, throughout, of the proper tools and instruments, and the use of substitute equipment must not be permitted.

List of Subjects and Time spent on each

Designation of Subjects		Number of Hours
1. Organizing and Equipping a Store-Room for the Unit's (or Large Unit's) Artillery Property and Ammunition		12
2. Methods of Distributing, Storing, and Protecting Artillery Property		16
3. The Procedures for Receiving and Releasing Artillery Property		16
4. Storage and Protection of Ammunition		30
5. Storage and Protection of Materiel		26
6. Storage and Protection of Infantry Arms		16
7. Storage and Protection of Military Devices		16
8. Storage and Protection of Lubricating, Cleaning, and Abrasive Materials		10
9. Transportation of Artillery Property		18
10. Records, Accounting, and Check on Accounting of the Store-Room		15

TOTAL: 175

SUBJECT 1: ORGANIZING AND EQUIPPING A STORE-ROOM FOR THE UNIT'S (OR LARGE UNIT'S) ARTILLERY PROPERTY AND AMMUNITION

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Exercise 1. Purpose and prescribed regular organization of the store-rooms. Requirements as to spaces beneath a store-room. Maintenance of the store-room, its grounds, and open-air storage spaces. Regime of temperatures and moisture in the store-room.

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Exercise 2. Choice of a place for the store-room, and the latter's structure and equipment under field conditions; maintenance of the store-room and organization of the work.

Exercise 3. Fire-fighting equipment and measures of fire prevention. Security and defense of the store-room. Procedures for the admission of material to the store-room.

Exercise 4. Duties of the store-room worker. Responsibility for storage and protection of artillery technical property.

SUBJECT 2: METHODS OF DISTRIBUTING, STORING, AND PROTECTING
ARTILLERY PROPERTY

The arrangement of storage frames and piles in the store-room. The distribution of property in piles. Maximum admissible height of the piles. Passages for the workers (between storage frames and piles). Storing property according to quality and quantity. Methods for conducting the work connected with the storage and protection of the property.

SUBJECT 3: THE PROCEDURES FOR RECEIVING AND RELEASING ARTILLERY
PROPERTY

Exercise 1. The procedure for receiving property in the store-room. Making out the reception documents. Responsibility of persons in charge for receipt of the property.

Exercise 2. The procedure for releasing property. Making out documents for release of the property. Responsibility of persons in charge for release of the property.

SUBJECT 4: STORAGE AND PROTECTION OF AMMUNITION

Exercise 1. The notion of ammunition grouped in units, and other ammunition. The "round" of ammunition, and its elements. Distinction between rounds of different degrees of readiness. Fixed rounds, separate-case rounds, and separate-cartridge rounds.

Exercise 2. Markings of projectiles, charges, and fuses.

Exercise 3. Methods of storing ammunition. Procedure of storing ammunition, and sequence for stacking it. Points to be observed in storing special types of shells.

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Rules for storing shells with fuze holes at the point. Methods and time intervals for the storage of time fuzes. Storing ammunition under the open sky and beneath roofs or awnings.

Exercise 4. Special rules for the storage of explosives and pyrotechnical material.

Exercise 5. Technical control and planned precautionary inspections of ammunition, their mode of procedure, and the appropriate time intervals. Check on the physico-chemical quality of powder, explosives, and pyrotechnical material. Organization and conduct of work with ammunition. Safe practice rules for storing and working with ammunition, explosives, and pyrotechnical material.

SUBJECT 5: STORAGE AND PROTECTION OF MATERIEL

Exercise 1. Grouping of materiel in units. Segregating the materiel into categories. ZIP (?). The procedure for issuing ZIP.

Exercise 2. Special characteristics and structure and equipment of storage places for the materiel. Equipment for servicing stations.

Exercise 3. The procedure of storing the materiel. Allocation of spaces to the materiel. Passages to be left open for operation and inspections. Putting away individual assemblies.

Exercise 4. Greasing and painting the materiel. Inspections, and removal of defects discovered. Control inspections, and planned precautionary inspections.

SUBJECT 6: STORAGE AND PROTECTION OF INFANTRY ARMS

Exercise 1. Storage of infantry arms that are in condition for combat use. Storing infantry arms in need of repairs. Determining the type of repairs required. Storing infantry arms that have become unfit for use. Storing spare-parts.

Exercise 2. Cleaning and greasing infantry arms, before placing them in storage. The materials used for cleaning and greasing. Control inspections.

Exercise 3. Inspection of infantry arms in storage or arriving at the store-room. Periodic and control inspections. Segregating the weapons according to categories.

SUBJECT 7: STORAGE AND PROTECTION OF MILITARY DEVICES

Exercise 1. Requirements to be made of places chosen for storage of the devices. Setting up storage frames, and leaving work passages between them. Distributing and placing the devices on the storage frames.

Exercise 2. The procedure for storing military devices and ZIP. Inspections and

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time intervals for conducting them. Procedure for inspecting devices. Segregating the devices according to categories. Cleaning and oiling the devices.

Exercise 3. Special factors involved in the storage of instruments for the topographical service and for graphic work. Storing photographic equipment. Storing electric measuring devices, searchlights, and radio-technical equipment.

Page 91:SUBJECT 8: STORAGE AND PROTECTION OF LUBRICATING, CLEANING, AND ABRASIVE MATERIALS

Exercise 1. Lubricating, cleaning, and abrasive materials used in servicing the materiel and apparatus, and their purposes for which they are used. The packings of lubricating, cleaning, and abrasive materials.

Exercise 2. Special problems involved in the reception of lubricating materials. The procedure for storing lubricating, cleaning, and abrasive materials. Inspections of the premises and of the stored materials, and time intervals for the inspections.

Exercise 3. Taking samples of lubricant for analysis. Determining the quality of a lubricant. The procedures for issuing lubricating, cleaning, and abrasive materials.

SUBJECT 9: TRANSPORTATION OF ARTILLERY PROPERTY

Exercise 1. General principles concerning the transfer of artillery property (packing, allocation, and loading on the means of transportation; the means of transportation; standard loads; etc.). Methods of transporting artillery materiel.

Exercise 2. Transportation of Infantry Arms.

Exercise 3. Transportation of military devices and apparatus.

Exercise 4. Transportation of Ammunition and Explosives.

SUBJECT 10: RECORDS, ACCOUNTING, AND CHECK ON ACCOUNTING OF THE STORE-ROOM

Exercise 1. The duties of the persons in charge for the records and the accounting. Making out the recording and accounting documents. Check on the issue of artillery property, and the records, and on the accounting.

Exercise 2. Inspection of the store-room. The procedure of admitting, to the store-room, the persons designated to make the inspection. Documents to be drawn up during the inspection, and the proper way to make them out.

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90Page 91: (cont'd)STORE-ROOM HAND FOR FUEL AND LUBRICANT SUPPLIES

Purpose of Training. To acquaint the store-room worker with the principal types of fuel and lubricants, and also to teach him properly to perform his duties at a military fuel deposit.

INDICATIONS AS TO METHOD

In making plans for this training, the main part of the time should be allotted to exercises dealing with the storage of fuel at the refueling point and the laboratory, working out in actual practice the teaching assignments of the program.

The subjects are taught by means of discussions, making use widely of visual aids (diagrams, posters, samples of fuels, lubricants, and oils).

In the course of the exercises the student must develop habits of using the proper working methods at the store-room and at the refueling point; and the student also must develop a protective attitude toward the technical equipment, fuel, and lubricants as being the social property of the Soviet State. All of the exercises must be oriented toward constant improvement of the daily work at the fuel deposits and refueling points of the unit (large unit).

List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Brief Information concerning the Structure and Functioning of the Internal Combustion Motor	10
2. Acquaintance with the Fundamentals of Fuel and Oil Production	12
3. Principal Indicators of the Quality of a Fuel	16
4. Principal Types of Fuel for Motor Vehicles	18
5. Characteristics of the Principal Types of Oils and Lubricants	10
6. Special Liquids	6
7. Structure of a Military Fuel Deposit	10
8. The Equipment of a Military Fuel Deposit	20
9. The Structure of the Storage Place	3
10. The Work of the Military Fuel Deposit	26
11. The Work of the Unit's Refueling Point	12

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Designation of Subjects

Number of Hours

12. Transportation of Fuels and Lubricants	10
13. The Procedure of Supplying Fuel	10
14. The Keeping of Records and Accounts	10

TOTAL: 175

SUBJECT 1: BRIEF INFORMATION CONCERNING THE STRUCTURE AND FUNCTIONING OF THE INTERNAL COMBUSTION MOTOR

Exercise 1: Brief study of the characteristics of modern internal combustion motors. The functioning principle and the structure of the internal combustion motor. The carburetor motor. Understanding of the formation of the working mixture for the carburetor motor. Diagram to show the feeding, lubrication, and cooling systems. Requirements as to the quality of the fuel and lubricants.

Exercise 2: The structure of the tank motor. Knowledge how to obtain the proper working mixture in Diesel motors. Diagram of the feeding, lubricating, and cooling system of the motor. Requirements as to the fuel and lubricants.

SUBJECT 2: ACQUAINTANCE WITH THE FUNDAMENTALS OF FUEL AND OIL PRODUCTION

Exercise 1: Crude oil is the basic raw material for the production of fuel and lubricant oils. The composition of crude oil, and its properties. Methods of obtaining the crude oil. Regions of the Soviet Union where oil wells and oil refineries are located. Expansion of the oil industry in the Soviet Union during the post-war period.

Exercise 2: Methods of processing the crude oil. The physico-chemical bases of oil refining processes. Simple distillation of crude oil. The products of simple distillation and their yield. Diagram of the process of simple distillation.

Exercise 3: Distillation by the Shukhov method (cracking process). The nature of this process. The products of the cracking process and their yield. Diagram of the process of distillation by the Shukhov method.

Exercise 4: Diagram showing the Soviet installations for the production of gasoline for automobiles, Diesel fuel, and lubricant oils. Modern methods for cleaning fuel and lubricant oils as used at the oil refineries of the Soviet Union.

SUBJECT 3: PRINCIPAL INDICATORS OF THE QUALITY OF A FUEL

Exercise 1: The density of the fuel and fraction product; its importance, and methods of determining it. The resilience of the vapors as a measure of the volatility of

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gasolines. Measuring the resilience of vapors; and the importance of this indicator for determining methods of using and storing the gasoline.

Exercise 2. The anti-explosive stability of gasoline. Detonation in the motor; its manifestations and consequences. Means of preventing detonation. Choice of the fuel for a given purpose. The octane number, its significance, and the means of determining it. Octane numbers of aviation gasolines, and the means of increasing them by the use of ethyl liquids.

Exercise 3. Viscosity and congealing temperatures of the Diesel fuels. The importance of these indicators, and methods of determining them. The influence of water and mechanical admixtures upon the quality of fuel.

Exercise 4. Determining the presence of water and mechanical admixtures in the fuel, and means of removing them. The importance of the property of the fuel for normal and economic functioning of the motor.

SUBJECT 4: PRINCIPAL TYPES OF FUEL FOR MOTOR VEHICLES

Exercise 1. Principal types of aviation gasoline and its range of applicability. The B-70 aviation gasoline, its physico-chemical properties, and its uses.

Exercise 2. Taking samples and determining the density of the B-70 by means of the areometer. Distillation of the B-70 aviation gasoline.

Exercise 3. Motor vehicle gasoline and its range of applicability. Types of motor vehicle gasoline: A-66, A-70, and A-74; their physico-chemical properties; and their use in automobiles (according to the make of the vehicle).

Exercise 4. Determining the density of motor-vehicle gasoline by means of the areometer. Distillation of motor-vehicle gasoline A-70.

Exercise 5. Diesel fuel for combat vehicles and tractors. Winter and summer types of Diesel fuel. Fractional composition, viscosity, congealing temperature, and other indicators applicable to Diesel fuels.

Exercise 6. Determining the viscosity of the winter and summer types of Diesel fuel. Determining the presence of water and mechanical admixtures in Diesel fuel.

SUBJECT 5: CHARACTERISTICS OF THE PRINCIPAL TYPES OF OILS AND LUBRICANTS

Exercise 1. Aviation oils, their purposes, and their range of applicability. Basic types of the aviation oils MK, MS, MZ. Viscosity, congealing temperature, and other

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indicators of quality for these oils, and their use. Determining the viscosity of MK and MZ.

Exercise 2. Automobile tractor oils, their purposes, and range of applicability. Auto oils with acid and with selective rectification; physico-chemical indicators of quality of the auto oils; and the use of these indicators according to the make of automobile. Nigrol, its importance, and indicators of quality. Determining the viscosity of auto oil 4 and auto oil 18.

Exercise 3. Changes in the quality of oils while the motor is in operation. The aging of oils. ^{Restoring} ~~Restoring~~ the quality of used oil. Standards and procedures for turning in and collecting used oil; the storage and regeneration of used oil. Quality indicators for regenerated oils, and the use of such indicators.

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Exercise 4: First-bodied lubricants and their uses. Principal types of lubricant: solidol, constalin. The composition of lubricants, their production, and their physico-chemical properties. The use of lubricants on new makes of Russian automobiles and combat vehicles.

SUBJECT 6: SPECIAL LIQUIDS

Exercise 1. Anti-detonators and their purpose and uses. Ethyl Liquids R-9, 1-TS. The physico-chemical properties and the toxic action of the ethyl liquid. Precautionary measures, and first-aid measures in case of poisoning.

Exercise 2. Anti-freeze mixtures, their purposes and uses. Rules for handling anti-freeze mixtures, and first-aid measures in case of poisoning. Hydraulic-brake liquids; their composition and uses.

SUBJECT 7: STRUCTURE OF A MILITARY FUEL DEPOSIT

Exercise 1. Choice of the location for a fuel deposit. Factors determining the location of fuel deposits in peace time. Examples of ways to arrange the equipment of a military fuel deposit according to groups (types) of fuels and lubricants to be ^{assigning position to,} ~~storing~~ stored. Methods of ~~arranging~~ these groups and fire-protection spaces between them. Parking spaces for gasoline tank trucks.

Exercise 2. Special factors in distributing locations for military fuel deposits in offensive and in defensive combat. The construction of protective cover for fuels and lubricants. Camouflaging the deposits. Enclosures for the deposits, guard service, and maintenance of order at the deposit.

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Exercise 3. Fire-protection measures at the fuel deposit. Danger of fire and explosion of oil conduits and packing from beneath. Grouping fuels and oils in classes according to the degree of fire danger. Causes of fires in transit, in storage, and in the reception and delivery of fuel. Equipment and rules for putting out fires in a military store-room. Methods of using the fire-fighting equipment.

Exercises Interior Service Regulations (Ustav vnutrenney sluzhby), pp. 205-209.

SUBJECT 8: THE EQUIPMENT OF A MILITARY FUEL DEPOSIT

Exercise 1. The notion of unit administration and services. Tasks of the unit administration of services. Organization, tasks, and functions of the personnel in charge with respect to supplying fuel for their troop unit.

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Exercise 2. Purposes and tasks of the military fuel deposit. General and technical equipment of the deposit. Equipment for storing fuel and lubricants. Rules for care and maintenance of the packing. The calibration KP-2, and use of the calibration tables. Defects of packing and their elimination. Storage of empty packing material. Standards for the amount of packing loaded on the automobile.

Exercise 3. Hand pumps and their uses. The structure of gasoline motor pumps, and stand pumps; their characteristics and mode of functioning. The technical property and its purposes. Flexible hose, filters, measuring tape, grease-guns, stopcocks, and how to use them and take care of them.

Exercise 4. Determining the technical condition of the equipment and property by categories. Inter-repair and depreciation periods for the technical equipment and property.

SUBJECT 9: THE STRUCTURE OF THE STORAGE PLACE

The functions of the individual storage place. Basic requirements for storage places for lubricants, special liquids, and technical property. Arrangement of spaces, approaches, loading and unloading devices, ventilating structures.

SUBJECT 10: THE WORK OF THE MILITARY FUEL DEPOSIT

Exercise 1. Receiving fuel and lubricants at the fuel deposit. Preparing and cleaning packing containers at the deposit for the reception of fuel and lubricants. The procedure of receiving fuel from railroad tank cars, tank trucks, and barrels. Checking to make sure that the leaden seals are intact. Measuring the flow by flow and density of the fuel; checking to make sure that the inlets of the barrels used are in

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order. Checking on the quality, noting color, odor, the presence of water and of mechanical admixtures. Taking samples of fuel and lubricant to have the quality of the product analyzed. Methods of adjusting the quality of fuel and lubricants at the military store-room. The documentation required for the receipt of fuels and lubricants.

Exercise 2. Completing the practical tasks involved in the reception of fuels and lubricants. Determining the quantity of gasoline (automobile) and "benzovose." Taking samples and determining the quality of Diesel fuel by the simplest methods. Making out the papers for the reception of fuels and lubricants. Making out receipts for the fuel received.

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Exercise 3. Storing fuels and lubricants. Proper placement, covering, and maintenance of empty spaces, containers, and barrels with fuels and lubricants. Inspection and observation of the condition of containers and packing. Stopping the escape of liquids. Special requirements for the flow of gasoline in hot weather. Measures to cut down losses in the storage of motor fuel in a military deposit in times of peace and of war.

Exercise 4. Storing an emergency supply of fuel and lubricants. Refreshing the memory. Standards for natural storage losses, and means of keeping them as low as possible. Monthly inventories of the fuel and lubricants. Special characteristics and methods of storing the technical property. How to fulfill the duties of a Soviet citizen by protecting the property of the socialist State.

Exercise 5. Issuing fuel and lubricants. Documents required for issuing fuel and lubricants from the store-room. Admitting the recipient's motor vehicle into the storage area, observing all the rules of fire-protection. The procedure of issuing in the recipient's containers and in the store-room's containers. Measuring the quantity of fuel and lubricants given out. Placing lead seals on the containers. Special characteristics of issues of oils and other lubricants. Reception of used oil. Measures for cutting down losses in issuing the material. Making out documents for the issue of material, and rules for listing the fuel and lubricants issued through the store-room.

Exercise 6. Loading fuel and lubricants in containers upon motor vehicles with the aid of the simplest types of devices. Standards for loading filled barrels on

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automobiles of the various makes. The procedure of shifting the location of a military fuel deposit during an advance or on the march.

SUBJECT 11: THE WORK OF THE UNIT'S REFUELING POINT

Exercise 1. The purpose of the refueling point. Choosing location and equipment for a refueling point according to its purpose, its volume of activity, and the military situation. Special characteristics of the structure of a refueling point on the march. Containers and storage spaces for fuel and lubricants at the refueling point.

Exercise 2. The means of refueling. The structure of the columnar ~~gas~~ pump for gasoline and for lubricants, and its method of functioning. The simplest types of structure for supplying motor vehicles ~~structures~~ (built of material on hand at the unit). Measuring pots, filters, hose lines, grease-guns, stopcocks, and the ways to use them. Structures for heating oil during the winter season. Fire-protection

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measures at the refueling point. How to handle issues of fuel and lubricant to a motor vehicle.

Exercise 3. Practical work at the unit's own refueling point. Supplying individual vehicles from the available equipment. Supplying quickly a column of motor vehicles. Working out time standards for filling up various types of motor vehicle with the aid of hand-operated and mechanical equipment.

SUBJECT 12: TRANSPORTATION OF FUELS AND LUBRICANTS

Exercise 1. Transporting fuel and lubricants in individual containers and in tank cars. The railroad tank car and its structure. Standard expenditure of time for emptying a tank car. Transporting fuel by truck. ^{Gasoline} Tank trucks on ZIS-5 and ZIS-150 chassis; the structure, their characteristics, and rules for their operation.

Exercise 2. Fitting out the sides of automobiles with containers and barrels. Issuing fuel to aircraft. ^{Soft containers} Standards for loading fuel and lubricant in containers on railroad cars, on motor vehicles, and on aircraft. Issuing fuel through a tube conduit.

SUBJECT 13: THE PROCEDURE OF SUPPLYING FUEL

Exercise 1. The planned economy of the Soviet State. Supplying the Soviet Army -- a task which constitutes a part of the general national economic plan. The procedure of supplying troops in peace-time and in war-time. Receiving fuel, and determining upon a limit for its expenditure. Means ^{and} of procedures for bringing fuel and lubricants to a ^{troop} unit or large unit.

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Exercise 2. The procedure for receiving fuel and lubricants from neighboring storage deposits and crude oil bases during the winter season. Requisition orders, authorization to receive the material, and the documents required in that connection. Duties incumbent upon the store-room worker at a military fuel deposit in the way of keeping records and accounts of the material. The procedure of receiving fuel and lubricants from army fuel depots in time of war.

Exercise 3. Efforts to economize fuel in the operation of combat and motor transport vehicles. The importance of maintaining control over the proper and economic expenditure of fuels and lubricants. Measures to cut down losses in supplying individual motor vehicles. Causes of losses and deterioration of fuel in the storage, reception, and issue, and measures for eliminating these causes.

Interior Service Regulations (Ustav vnutrenney sluzhby), pp. 55-56.

SUBJECT 11: THE KEEPING OF RECORDS AND ACCOUNTS

Exercise 1. The comments made by Lenin and Stalin on the importance of records and accounting in a socialistic economy. Military accounting as an integral part of Government accounting. The importance of keeping accounts on fuel and lubricants by way of keeping a check on the proper expenditure of fuel in regiments and smaller units, and on keeping the necessary supplies on hand. Rules for filling out the requisite blank forms and for keeping the accounts in the troop units and large units. Accounting books on the movement of fuel, lubricants, and technical property. Reports on the expenditure of fuel and lubricants. The route card, its appearance, and the proper way to fill out the blanks. The document on reception of fuel and lubricants. Directives and orders for the issue of fuel and lubricants.

Exercise 2. The importance of accounting. Methods for keeping the books. Accounting for the movements of fuel and lubricants; accounting for the movements of technical property; accounting for the collection and release of used oil; accounting for waste (shortcomings) of fuel, lubricants, and technical material.

Exercise 3. Working out practical problems in filling out and writing up records and accounting documents on the fuel supply service of the troop unit or large unit.

SUBSISTENCE SUPPLIES

STORE-ROOM HAND FOR (TRANSPORTATION, EQUIPMENT, AND PERSONAL)

EQUIPMENT

Purpose of Training.

1. To study the organization of subsistence supplies

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for the troop unit.

2. To teach the men how to do their work at the store-room; to have them learn the rules for storing subsistence and feed supplies, packings, and other objects pertinent to subsistence supplies, and to take care of the requisite accounting and records.

INDICATIONS AS TO METHOD

The basic method for teaching the general principles of supply work consists of discussions conducted with extensive use of visual aids. The methods of store-room keeping and management of military property are studied by means of practical exercises. Exercises in keeping the records of for subsistence supplies are also conducted by way of practical exercises, and drawing up records of and notes on the incoming and outgoing operations.

Special attention must be devoted to developing a sense of honor and a feeling of responsibility for proper storage, protection, and issue of subsistence supplies.

List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Tasks and Organization of Subsistence Supplies for the Troop Unit	6
2. Receiving Subsistence and Feed Supplies for the Troop Unit	18
3. Seasonal Procurement of Subsistence and Feed Supplies for the Troop Unit	8
4. Subsistence Supplies for the Personnel	10
5. Providing Table and Kitchen Equipment and Packing Material	6
6. Management of Supplies by Weight	10
7. Subsistence Supplies for Animals	5
8. Subsistence and Feed Supplies for the Troop Unit of an Army in Action	10
9. Structure, Equipment, and Contents of a Military Subsistence Supply Store-Room	18
10. The Work of the Military Store-Room	20
11. The Storage of Subsistence and Feed Supplies	32
12. Subsistence and Feed Supply Records in the Store-Room	14

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Number of Hours

- | | | |
|-----|--|---|
| 13. | Revision of Subsistence and Feed Supply Accounts | 4 |
| 14. | Inspection of the Store-Room | 4 |

TOTAL: 165

SUBJECT 1: TASKS AND ORGANIZATION OF SUBSISTENCE SUPPLIES FOR THE TROOP UNIT

Exercise 1. Notions concerning military economics. Military economics as a constituent element of socialistic national economy. Socialistic national economy as a source subsistence and feed supplies for the Soviet Army. The problems of military economy. Organization of the economic units of the troop unit. Organization, problems, and functions of subsistence and feed supplies for the troop unit. Remarks by Page 101:

Comrade Stalin on the importance of subsistence supplies for the Army.

Exercise 2. Duties and rights of the personnel in charge of subsistence and feed supplies of the troop unit. The procedures for receiving and issuing transactions by the personnel in charge of subsistence and feed supplies.

SUBJECT 2: RECEIVING SUBSISTENCE AND FEED SUPPLIES FOR THE TROOP UNIT

Exercise 1. The procedure for assigning and forwarding subsistence and feed supplies at the troop units. Obtaining subsistence and feed supplies from the warehouses of the Ministry of War and from the bases of the sources of supply. Standards of weight for packing bags. The procedure for receiving subsistence and feed supplies in standard packings.

Exercise 2. Rules for receiving supply loads from railroad stations (docks). Making out documents concerning shortages and spoiled goods in reception from a railroad station (dock).

Exercise 3. Procedures for shipping subsistence and feed supplies. Requirements that must be fulfilled by motor and other vehicles and railroad-cars used for the transportation of subsistence and feed supplies. Rules for distributing subsistence and feed supply loads on a motor vehicle or other vehicle. Standard loads.

Exercise 4. Special problems in the transportation of bread, meat, fish, and fresh vegetables. Sanitary and hygienic requirements for the shipment of subsistence and feed supplies. Measures to prevent spoiling, soiling, and stealing during while a shipment is on its way. The "open" ~~list~~ sheet.

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SUBJECT 3: SEASONAL PROCUREMENT OF SUBSISTENCE AND FEED SUPPLIES FOR THE TROOP UNIT

Exercise 1. Types of procurement. Preparing store-room property, packing material, weighing equipment, and the means of transportation for making a shipment. Preparations for the reprocessing of products. Procedure for the forwarding and shipment of potatoes, vegetables, and bulky feed supplies.

Exercise 2. Organization for the reprocessing of products. Pickling of cabbage, beets, and carrots. Salting of cucumbers, tomatoes, onions.

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SUBJECT 4: SUBSISTENCE SUPPLIES FOR THE PERSONNEL

Exercise 1. Standards of subsistence in the Soviet Army. The procedure for including items in the food supply and for excluding them from the list. Procedure and methods of supplying the needs of food supply. Organizing the supply of warm foods at the military barracks. Supplying military personnel to whom the products are handed out in dry form.

Exercise 2. Organizing the food supply in the field, at maneuvers, and during a period in camp. Organizing the food supply for small units on detached duty. Organizing the food supply at the troop echelon. Providing food supplies following a route of march.

SUBJECT 5: PROVIDING TABLE AND KITCHEN EQUIPMENT AND PACKING MATERIAL

Exercise 1. Standards for issuing dishes and related equipment and the length of time for which it should remain serviceable. The procedure for issuing dishes and related equipment to a troop unit. Requirements as to kitchen equipment. Protection of dishes and related equipment. Calling dishes and other equipment that have become unsuited for use.

Exercise 2. Types of packing, and a brief description of each. Classification of the types of packing. Use, storage, and protection of the packing. Recovery of packing.

SUBJECT 6: MANAGEMENT OF SUPPLIES BY WEIGHT

Exercise 1. Weights obtained from balance scales and from spring-action scales. The structure of scales, their disassembly, assembly, and cleaning. Setting up and checking balance scales. Use and care of scales.

Exercise 2. The structure of scales for the weighing of freight; their disassembly,

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reassembly, and cleaning. Checking freight weights. Rules for weighing shipments.

Care of the scales.

Exercise 3. Weights: inspection, check, and care of weights. Measuring devices for liquids and friable material; their structure, checking, and contents. Repairs on scales. Transportation of weights. Checking and marking of scales and weights. Governmental control marks. Governmental supervision of weights. Responsibility for the condition of weights.

SUBJECT 7: SUBSISTENCE SUPPLIES FOR ANIMALS

Standards of feed supply. The procedure of including and excluding animals for feed rations. Organizing the provision of feed for animals. Priorities for the consumption of feed supplies.

SUBJECT 8: SUBSISTENCE AND FEED SUPPLIES FOR THE TROOP UNIT OF AN ARMY IN ACTION

Exercise 1. Special problems involved in organizing the subsistence and feed supply for a troop unit of an army in action. The source of the troop unit's supplies of subsistence rations and feed. Procedure of obtaining the subsistence and feed supplies and conveying them to the troop unit. Obtaining supplies from local sources. Special problems in supplying bread, meat, and bulky feed stores. Storing the subsistence and feed supplies for the troop unit. Combat losses of subsistence and feed supplies, and the procedure of listing them.

Exercise 2. Organizing the food supply under field conditions. Food supply groups. Distributing the products and issuing them to the minor units. Preparation, supply, and distribution of warm foods and dry products under the conditions of different types of combat situation. The purpose of the individual reserve ration and the method of using it.

SUBJECT 9: STRUCTURE, EQUIPMENT, AND CONTENTS OF A MILITARY SUBSISTENCE SUPPLY STORE-ROOM

Exercise 1. The importance of properly storing the subsistence and feed supplies at the troop unit. The importance of the military food-supply store-room. Types of storage places, their structure, and requirements to be made with respect to them. The structure of storage places for vegetables. The structure of the ice-box. Preparing the ice. Fitting up the grounds of the storage-room.

Exercise 2. Interior equipment of storage spaces with storage frames, chests, shel-

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ves, cupboards, counters, and tables. The uses of this equipment, and its position in the storage spaces. Special characteristics of storage spaces for vegetables. Fire-fighting equipment.

Exercise 3. Structure and equipment of the food-supply store-room under field conditions. Contents of the store-room. The procedure of operating the store-room.

Exercise 4. The list to be made designating the regular inventoried property to be kept in each storage space, and ~~the maintenance~~ maintenance of all the internal equipment and inventoried property. Maintenance of the storage spaces and of the grounds surrounding the storage-room. Rules for putting the premises of the store-room in order.

Exercise 5. Sanitary and hygienic demands to be made upon the storage spaces and the premises of the store-room. Methods of disinfecting the premises.

Page 104i:SUBJECT 10: THE WORK OF THE MILITARY STORE-ROOM

Exercise 1. Internal arrangements of the store-room. Organizing the work in the store-room. Readyng the premises of the store-room, and containers, for the reception of subsistence ~~supplies~~ and feed supplies. The procedure of transporting subsistence and feed supplies to the store-room. Checking on the quantity and quality of the food supplies as they are being received, and also on the quantity and quality of feed supplies, dishes, and kitchen equipment received for the subsistence supply room of a troop unit.

Exercise 2. Making a record of the accepted incoming subsistence and feed supplies, dishes, containers, etc. Making a record shortages at the time of reception. Standards for allowable losses in transport.

Exercise 3. The procedure of issuing products to the kitchen. Procedure for issuing bread and sugar for the dining room. Handing out natural products directly to the soldier. Sanitary and hygienic requirements to be made for the issue of food supplies. Procedure of issuing feed supplies. Check on the quality of the issued subsistence and feed supplies. The procedure of issuing dishes for the table.

SUBJECT 11: THE STORAGE OF SUBSISTENCE AND FEED SUPPLIES

Exercise 1. Special problems involved in the storage of: meat (fresh, cooled, refrigerated, frozen, salted); fish (boiled, refrigerated, frozen, salted). Methods for putting away supplies of this type. Keeping a watch on the storage. Storage regime (temperature, moisture, circulation of air). Time limits on storage.

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Exercise 2. The influence of light, temperatures, and moisture on the storage of fats and butter. The procedure of placing barrels and boxes with fats into storage. Regime of storage, and time limits on storage. Keeping a watch on the fats in storage.

Conditions for the storage of milk and egg products. Time limits on their storage, and methods for keeping a watch on the stored products. Methods for using lime on the eggs in storage.

Exercise 3. Method for putting canned goods in storage. Storage regime and time limits on storage. The influence of temperature conditions on the quality of the canned goods. Check on the quality of the canned goods while they are in storage. Measures to keep the tins of the canned goods from rusting. Methods for using defective canned goods.

Exercise 4. Methods for putting bread in storage. Methods for storing biscuits, macaroni, and crackers. Looking after the stored material. Methods for shifting this material into another storage space. Methods to prevent molding. Methods for freshening up the supplies. Regime of storage and time limit on storage.

Methods for storing grain, flour, and ~~grain~~ ^{groats}. Special rules for the storage of oats under tarpaulin shelters and on storage places for sacks, in the packing and loose. Method of storing under winter and under summer conditions.

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Methods for putting the material into sacks, depending on the moisture of the product and the season of the year. Methods for shifting to another storage place. Standards of moisture for flour, grain, and ~~grain~~ ^{groats}. Watching over the material in storage. Regime and storage and time limit on storage.

Exercise 5. Preparation of vegetables for drying and storing (cleaning, picking, and sorting). Methods for storing potatoes and beets in bins and "burt". Putting cabbage, carrots, and onions in storage. Looking after the stored material. Picking and shifting vegetables while they are in storage. Looking after the stored material. Regime of storage and time limit on storage. The storage of fermenting vegetables. The storage of dried vegetables.

Exercise 6. Methods of putting concentrated foods in storage. Looking after the stored material. Regime of storage and time limit on storage. Rules for storing

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sugar, tea, coffee, cocoa, chocolate, tobacco, and matches. Looking after the material in storage.

Exercise 7. Method for storing combination feeds, in their packing, without packing in enclosed spaces, in bins. Putting away and storing pressed and dried hay on platforms, stacks, and hay-ricks. Storage of dried hay in enclosed spaces. Storage of straw. The moisture of hay and combined feeds received for storage. Looking after the stored material. The regime of storage and the time limit on storage.

Exercise 8. Methods of storing and keeping various kinds of table and kitchen equipment. Storing rejected dishes, etc. Methods of inspecting dishes, etc. Measures to prevent corrosion. Storage of the regularly used material. Storage of kitchen ranges that are fit for use. Sorting, putting away, and storing unneeded packing material.

Exercise 9. Rodents and other warehouse pests. The conditions under which the pests increase, and preventive measures. Determining the degree to which subsistence supplies and feed supplies have suffered damage. Measures for fighting warehouse pests. Measures for fighting against rodents.

Exercise 10. Methods for storing mobile supplies under field conditions. The construction of storage platforms for sacks, and methods for setting down and covering the subsistence and feed supplies. Measures for protecting subsistence and feed supplies from the action of explosives.

Exercise 11. Sanitary and hygienic requirements for the storage of subsistence and feed supplies. Personal hygiene for storage workers. Duties and responsibilities of food store workers with respect ^{to the} ~~store~~ storage and protection of subsistence and feed supplies. Standards for natural losses in storage. Efforts to prevent stealing

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of subsistence and food supplies. Material and judicial responsibilities of store-room workers.

Exercise 12. Security of the store-room. Methods of sealing storage spaces and of keeping storage-room keys. Methods of turning the store-room over to the guards and taking it back from the guards.

SUBJECT 12: SUBSISTENCE AND FEED SUPPLY RECORDS IN THE STORE-ROOM

Exercise 1. Organizing the subsistence and feed supply records of the troop unit. Duties of record-keeping for subsistence and feed supplies in the store-room. The

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nature of accounting documents in the store-room. Requirements for setting up an accounting, and for keeping and storing the accounting documents. Duties of the store-room worker in the matter of accounting for the subsistence and feed supplies in the store-room.

Exercise 2. Accounting for the incoming and outgoing subsistence and feed supplies and containers at the store-room. Accounting for dishes and other table and kitchen equipment.

Exercise 3. Keeping the storage cards. The procedure of turning the documents over to the quartermaster units.

SUBJECT 13: REVISION OF SUBSISTENCE AND FEED SUPPLY ACCOUNTS

The purpose of the revision of accounts. Making preparations for the auditing of subsistence and food supplies at the store room. The method of auditing. Documents to be drawn up for the audit.

SUBJECT 14: INSPECTION OF THE STORE-ROOM

The tasks involved in the auditing. Method for carrying on the audit. Putting the results of the audit on paper. Elimination of defects brought out by the audit.

STORE-ROOM HAND FOR CLOTHING AND PERSONAL EQUIPMENT

Purpose of Training. 1. To study the organization of clothing and personal equipment supplies for the troop unit.

2. To teach the men how to carry on the work, how to store the property, and how to keep the store-room records.

INDICATIONS AS TO METHOD

The basic method for teaching the general principles of clothing and equipment supplies will be discussions, supplemented by the use of visual aids. Store-room property and supply practices relating to supplies of clothing and equipment will be studied exclusively in a practical manner, using the ~~large~~ troop unit's property as a teaching basis. Exercises that deal with the keeping of records will also be conducted in a practical manner, drawing up documents and noting down the operations concerned with incoming and outgoing supplies.

List of Subjects and Time spent on each

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Designation of Subjects	Number of Hours
1. Tasks involved in organizing Clothing and Personal Equipment Supplies for the Troop Unit	6
2. Methods of Receiving Property for the Troop Unit ...	16
3. Providing Property for the Personnel of the Unit ...	10
4. Utilization and Repairs of the Property	20
5. Bathing and Laundry Services	8
6. Clothing and Personal Equipment Supplies for the Troop Unit of an Army in Action	8
7. Structure, Equipment, and Contents of a Store-Room for Clothing and Personal Equipment	16
8. The Work of the Military Store-Room	20
9. The Methods of Storing the Property	36
10. Property Records in the Store-Room	16
11. Taking Inventory of the Property	5
12. Auditing the Store-Room	1

TOTAL: 165

SUBJECT 1: TASKS INVOLVED IN ORGANIZING CLOTHING AND PERSONAL EQUIPMENT SUPPLIES FOR THE TROOP UNIT

Exercise 1. The notion of military property. Military property as a constituent part of socialistic national property. Tasks relating to military property. Organization of regimental agencies concerned with property. Organization, tasks, and functions of the clothing and personal equipment service of the troop unit. The responsibilities of the Bolshevik Party and of the Soviet Government concerning supplies for the Soviet Army.

Exercise 2. Duties and rights of the personnel in charge of the clothing and personal equipment property of the troop unit. Procedures for the persons in charge of clothing and personal equipment supplies in receiving and issuing property.

SUBJECT 2: METHODS OF RECEIVING PROPERTY FOR THE TROOP UNIT

Exercise 1. Requisitioning clothing and equipment stores for the troop unit. The procedure for obtaining such property from the storage depots of the Ministry of War. Duties of receiving personnel at the troop unit to check on the quantity and quality of the property, and the age and composition of the shipments received.

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Exercise 2. Rules for receiving freight from a railroad station (dock). Method for

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external inspection of loading spaces in freight cars; check on the good order of packing, seals, and proper weights as the property is received from the railroad station (dock). Drawing up reports on shortages and spoiled property in receiving shipments from a railroad station (dock).

Exercise 3. The procedure of hauling shipments received. Readyng the means of transportation for hauling the property. Rules for loading and stacking property on ~~the~~ vehicles, motor trucks, and railroad cars. Standard loads. Methods to keep property from spoiling, becoming soiled, and pilfered while in course of transfer. The "open" sheet.

Reception of property intended for the use of military personnel brought in from other troop units.

SUBJECT 3: PROVIDING PROPERTY FOR THE PERSONNEL OF THE UNIT

Exercise 1. The right of military personnel to receive clothing. Standards of clothing supply; standards of maintenance; and minimum time of service (wear) of the articles. The issue of clothing according to the purpose for which it is to be used, the right of use, and the qualitative condition. Providing private soldiers and non-commissioned officers with clothing. The methods of issuing the property and distributing it among private soldiers and non-commissioned officers. Special problems in providing property for a newly arrived replacement (recruit). Method of issuing property for men assigned to a special detail. Issue of clothing to officers.

Exercise 2. Issue of clothing supplies to military personnel in transit to another unit, and upon discharge from military service. Issue of bedding to the individual subordinate units, as well as special clothing and ~~equipment~~ ^{clothing} for sports. The issue of personal military and other equipment.

SUBJECT 4: UTILIZATION AND REPAIRS OF THE PROPERTY

Exercise 1. Utilization of the property. The importance of proper utilization, and of timely, high-grade repairs. Choice and preparation of uniforms and equipment. Measurements for clothing and footwear. Rules for putting on and taking off uniforms and personal equipment.

Exercise 2. Care of the clothing: cleaning, ventilation, oiling, and drying. Marking the individual's articles of clothing. The procedure of changing property from

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one category to another. Fatigue uniforms, reasons for the way they are made, and purposes for which they are used. Discarding articles of clothing. Use of property that does not come up to specifications. Check on the utilization and protection of the property.

Exercise 3. Organisation for repairing the property in the troop unit. Small store-rooms ("M corners") in the subordinate units; their purpose, and the task of supplying them with repair materials. Military shops for repairs on clothing and personal equipment. Supplying the shops with repair materials. The procedure of giving property into repair and getting it back.

SUBJECT 5: BATHING AND LAUNDRY SERVICES

Exercise 1. Organizing the bathing and laundry services in a troop unit. Military bathing and laundry work. The procedure in making use of civilian bathing establishments and laundries. Supplying the required soap and soda.

Exercise 2. Washing and bathing for enlisted personnel. Procedure for sending soiled linen to the laundry and receiving it back. Making arrangements for the soldiers to wash their own handkerchiefs, collars, and foot cloths. Rules for making change to clean underwear.

SUBJECT 6: CLOTHING AND PERSONAL EQUIPMENT SUPPLIES FOR THE TROOP UNIT OF AN ARMY IN ACTION

Exercise 1. Sources of supply available to the troop unit for clothing and personal equipment. The procedure for requisitioning, receiving, and moving the property. Procedure and priorities in issuing property to the individual small units. Organizing seasonal changes of property.

Exercise 2. Supplying property to sick and wounded who are evacuated toward the rear. Organizing the collection, on the battle field, of Russian and captured property, and the procedure for using it. Collection, storage, and shipment of property taken from killed military personnel. Reception, from the various small units, of unsuited and unneeded property, and the procedure of evacuating it toward the rear. Making arrangements for repairs of property within the troop unit. Bathing and laundry services under field conditions.

SUBJECT 7: STRUCTURE, EQUIPMENT, AND CONTENTS OF A STORE-ROOM FOR CLOTHING AND PERSONAL EQUIPMENT

Exercise 1. Purposes of military clothing and equipment store-rooms for current

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use and for indispensable reserves. Types of storage spaces in a military store-room. The structure of a storage space. Requirements to be made of a storage space depending on the nature of the property to be stored.

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Exercise 2. Internal (framework) equipment of the storage space. Purposes of this equipment. Distribution of this equipment in the storage spaces. List of inventoried property to be placed in the storage spaces. Maintenance of the framework equipment, and keeping the inventory up-to-date.

Exercise 3. Heating, lighting, and ventilation of the store-room premises. Maintenance of cleanliness and order in the store-room premises. Rules for arranging the premises. Methods to provide disinfection for the premises. Maintenance of the store-room grounds.

SUBJECT 2: THE WORK OF THE MILITARY STORE-ROOM

Exercise 1. THE INTERNAL ARRANGEMENTS OF THE STORE-ROOM. Systematizing the work in the store-room. Preparing the store-room premises for the reception of property. Method of transporting property to the store-room of a troop unit. The procedure of unpacking the property. Making a check of quantity and quality of the property when it is received by the troop unit's store-room. Making a record of the property and parcels received. Preparing documents to indicate shortages and defects of property received through the fault of the sender.

Exercise 2. The procedure for receiving property from a subordinate unit. Inspection of property received from a subordinate unit; sorting it, and putting it in order. The procedure for receiving and releasing personal property belonging to privates and non-commissioned officers.

Exercise 3. The basis on which property may be issued from the store-room. Preparing the property for issue. The procedure for issuing property to subordinate units and officers. Priorities of issues of property. The procedure for issuing sports equipment, political information material, and camp property.

Exercise 4. Preparation and issue of towels for the regular bath. Procedure for issuing repair material, rags, and lubricant oils. Procedure for issuing packing material, and defective property. Procedure for forwarding property to other units and to the storage depots of the Ministry of War.

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SUBJECT 9: THE METHODS OF STORING THE PROPERTY

Exercise 1. The importance of properly storing the property. Understanding of the process of storing and the various types of property storage. The process of locating a storage for property. General measures for eliminating the causes of spoiling and pilfering of property. The fight against insects and rodents.

Exercise 2. The storage of leather, leather foot-wear, and ^{personal} equipment for enlisted men. Special characteristics of structure and contents of deposits for the storage of leather and leather articles. ~~Rules~~ Rules for storing leather articles and material. Watching the temperature for the storage of leather articles. Greasing and regreasing leather, and its effect upon the durability of a leather article. Types and methods of regreasing. Preventive measures and methods of dealing with pests that destroy leather.

Exercise 3. Storage of leather articles. Special characteristics of structure and contents of deposits for the storage of rubber. Rules for the storage of rubber plate, finished articles, rubber shoes, rubber boots, gloves, rubber rain coats. Ware limits on storage. Special characteristics of the storage of rubber glue.

Exercise 4. The storage of felt articles and sheepskin furs, broadcloth uniforms and woolen materials. Preparation for storage and rules for putting the material away. Looking after the stored material. Storing articles that have been in use. Preventive measures and measures to fight against moths and rodents.

Exercise 5. Storing summer uniforms, warm clothing, special clothing, underwear, and cotton material. Rules for putting the material away. Storing things that have been in use. Measures for protection against rodents and rotting.

Exercise 6. Storing of saddles, pack-saddles, harness, and other equipment for horses. Storing the material individually and in sets. Rules for putting away the sets and individual parts and articles. Protecting the individual parts and articles. The procedure for storing horse supplies in assembled form.

Exercise 7. Storing tents, tarpaulins, and articles of cordage. Preparing tents for storage. Rules for putting away the individual parts of tents, tarpaulins, and cordage. Rules for protecting the parts made of tarpaulin (canvas), wood, metal, and rope. Rules for shifting the tents to another position. Receiving and storing tents that have been in use, and looking after them.

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Exercise 8. Arrangement (location) of horse-drawn military vehicles. Differences between the storage of horse-drawn military train equipment that is not in use, and that which is in use. Rules for placing the vehicles and the spare-parts. Care of the horse-drawn vehicles while they are in storage, and rules for protecting the individual parts. Inspection of the vehicles when they arrive at the ~~main~~ depot for storage. Measures for fighting against worms, fungi, and other pests.

Exercise 9. Storing metal articles. The procedure for arranging horse-shoes, horse-shoe nails, crampons, spare-parts of horse-drawn vehicles, dishes, casks, and other articles. Rules for protecting the material. Corrosion of metal parts, and measures to prevent it.

Putting away and storing the sports equipment. Rules for storage of the personal belongings of enlisted men. Storage of packing materials.

Exercise 10. Special characteristics of storage under camp-life conditions. The storage of property under field conditions. Storage of emergency property. Duties and responsibilities of store-room workers for the storage and protection of property. Material and duty responsibilities of the store-room workers.

Exercise 11. Security of the store-room. The procedure of locking or sealing off the storage spaces and keeping the keys of the store-room. Procedure of turning storage spaces over to the security guards and receiving them back from the guards.

SUBJECT 10: PROPERTY RECORDS IN THE STORE-ROOM

Exercise 1. Organizing the records for personal equipment and pack-train property, for a troop unit. Nature of the records of the property in the store-room. Requirements for setting up records, and for keeping and storing the records. The duties of the store-room superintendent by way of accounting for the property in the store-room.

Exercise 2. Drawing up documents for the reception and issue of property in the store-room. Noting down the receiving and issue transactions in the property record book (or on the property record cards).

Exercise 3. Checking on the completeness of sets of articles. The procedure of keeping a log of baggage train property. Records of property given out for repairs and laundry.

Exercise 4. Special characteristics of the records on emergency supply property.

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Records of the personal belongings of enlisted personnel.

Exercise 5. Marking the storage racks, etc., with tags. Procedures for the storeroom superintendent to turn in documents to the quartermaster battalion.

SUBJECT 11: TAKING INVENTORY OF THE PROPERTY

Exercise 1. The purpose of taking inventory. Making preparations for the inventory. The technique of taking inventory of different types of property. Special characteristics of inventories of emergency property.

Exercise 2. Drawing of the documents of the property inventory.

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SUBJECT 12: AUDITING THE STORE-ROOM

The tasks involved in the audit. Method of conducting the audit. Putting the results of the audit on paper. Elimination of shortages brought out by the audit.

MEDICAL AID MEN AND ORDERLIES

Purpose of Training. 1. To develop practical habits for giving aid to the wounded and carrying them from the field of battle.

2. To study the fundamentals of human anatomy and physiology, of military hygiene, and of medico-chemical protection for the troops.

3. To impart the knowledge required for anti-epidemic service in the company (battalion).

INDICATIONS AS TO METHOD

In making plans for the instruction, a large proportion of time must be allowed for practical exercises. In these exercises the men must be taught independently to carry out prophylactic measures, to find the wounded men on the battle field and to give them first aid. In all of the exercises the instructor must draw heavily on experience gained during the Second World War with respect to medical care for the subordinate unit in combat.

List of Subjects and Time spent on each

Designation of Subjects

Number of Hours

1. Brief Information concerning Human Anatomy and Physiology	16
2. Fundamentals of Military Hygiene	18
3. Infectious Diseases and Prophylactic Measures against them	18

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List of Subjects and Time spent on each
Designation of Subjects

Number of Hours

4. Fundamentals of Disinfection	16
5. Fundamentals of Extermination of Insects and Rodents	12
6. Skin and Venereal Diseases, and their Prophylaxis	10
7. Fundamentals of Medico-Chemical Protection ...	6
8. Care of Sick and Wounded in a Stationary Establishment	10
9. Medical First Aid	32
10. Finding, Pulling out, Carrying, and Transporting the Wounded in Combat	22
11. Burns, Frost-Bite, and Injuries by Electricity	4
12. Hygiene of Food and Water Supply	4

TOTAL:170

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SUBJECT 1: BRIEF INFORMATION CONCERNING HUMAN ANATOMY AND
PHYSIOLOGY

Exercise 1. An understanding of cells and tissues. Some knowledge concerning the various individual organs, and systems of organs, and the organism as a whole. The structure of bone. The skeleton and its importance. The system of the organs of motion. Smooth and striated muscle. Tendons. Joints. The physiology of the muscular system; the manner in which muscles function.

Exercise 2. The system of the organs of blood formation. Understanding of the structure and functioning of the heart and the blood vessels. The pulse, and the places where it can be felt. Constituent elements of the blood: the importance of blood for the organism. The system of respiratory organs. The cavities of the nose, larynx, trachea, bronchus, and lungs. The air capacity of the lungs.

Exercise 3. The organs of the digestive system. Understanding of the structure of the digestive tract. Diagram of the process of digestion. The part played by the liver in digestion.

Exercise 4. Understanding of the function of the kidneys. The glands of internal secretion. The nervous system and the sensory organs. A general understanding of the structure and functioning of the nervous system. The organs of sight, hearing, and equilibrium.

SUBJECT 2: FUNDAMENTALS OF MILITARY HYGIENE

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Exercise 1. Understanding of hygiene. The importance of personal hygiene. Methods and means of taking care of the skin, teeth, and hair. The hygiene of clothing. Care of the feet. The importance of morning inspections of the personnel of the troop unit, and the duties of the medical personnel. Physical training, and its importance in strengthening the health.

Exercise 2. Marching hygiene under winter conditions. Getting ready for a march. The food regime. The prevention of freezing parts of the body, and first aid measures for such occasions. Special problems of marches on skis or snow-shoes. The role and duties of the medical personnel in the observation of sanitary-hygienic principles while the march is in progress.

Exercise 3. Hygiene of the barracks. Rules for distributing personnel in the barracks. Sanitary-hygienic requirements with respect to maintenance of the premises of the barracks. Sanitary requirements as to collection, removal, and destruction of dirt and refuse. Maintenance and disinfection of toilets.

Exercise 4. Army hygiene. Sanitary-hygienic requirements with respect to maintenance of the camp grounds. Sanitary requirements with respect to collection, removal, and destruction of dirt and refuse. Maintenance and disinfection of toilets.

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Exercise 5. Hygiene for marches under summer conditions. Preparing for the march. Food regime. Prevention of heat-strokes, and first aid in cases of that sort. Choice of places for rest halts and overnight halts. Role and duties of the medical personnel with respect to observance of sanitary-hygienic requirements during the march.

SUBJECT 3: INFECTIOUS DISEASES AND PROPHYLACTIC MEASURES AGAINST THEM

Exercise 1. Basic knowledge concerning microbes that give rise to infectious diseases. The influence of physical, chemical, and biological factors on microbes. Sources of infection, and the means of spreading infectious diseases. Prophylactic measures used in the struggle against infectious diseases. Preventive inoculations used by the Soviet Army.

Exercise 2. Parasitic typhus. Relapsing typhoid, and typhus. The exciting causes of these diseases. The sources of infection. The mechanism by which the disease is transferred. Basic symptoms of the disease.

Exercise 3. Virus groups and seasonal catarrhs. Basic symptoms of the disease. Prophylactic measures, and measures to fight the disease.

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Exercise 4. Zoonoses: tularemia, brucellosis, hydrophobia, malignant anthrax, bubonic plague. Sources of infection. Means of spreading the infection. Basic symptoms of the disease. Measures of individual and collective prophylaxis.

Exercise 5. Infectious gastro-intestinal diseases: typhoid fever, paratyphoid, dysentery, cholera. Food poisoning. Causal agents. Sources of infection. Means of spreading the disease. Basic symptoms of the disease. Measures of individual and collective prophylaxis.

Exercise 6. Malaria. Causal agents. Sources of infection, agents that transfer the disease. Basic symptoms of the disease. Measures of individual and collective prophylaxis.

SUBJECT 4: FUNDAMENTALS OF DISINFECTION

Exercise 1. The nature of disinfection. The role of disinfection and in the prophylaxis against infectious diseases. Types of disinfection: prophylactic, current, and final. Basic methods of disinfection. Regulation requirements concerning the care of the premises.

Exercise 2. Chemical disinfectants used in the form of solutions: mercuric chloride, formalin, chloride of lime, slaked lime.

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Exercise 3. Chemical disinfectants used in the form of solutions: crystalline carbolic acid, 100% "naphthalinol," creolin.

Exercise 4. The technique of preparing and using disinfectant solutions.

Exercise 5. Equipment used for wet disinfection. Hydraulic hoses, their structure, and rules for using them. Minor repairs on hydraulic hoses. The technique of applying wet disinfection. Hot air, water vapor (steam), and their properties.

Exercise 6. Method of disinfection by gases. Chemical disinfectants used in gaseous form: formaldehyde, sulfur, and others. Methods of using them. The technique of conducting disinfection with these substances.

Exercise 7. Use of a disinfection chamber. Types of disinfection chamber. Understanding of the work of the disinfection chamber. The nature of the formalin-vapor method of disinfection.

SUBJECT 5: FUNDAMENTALS OF EXTERMINATION OF INSECTS AND RODENTS

Exercise 1. The nature of the process of exterminating insects. The part played by the extermination of insects in prophylaxis against infectious diseases. Physical and

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Insecticides.
chemical ~~insecticides~~ Use of hot air and steam as insecticides. Types of insecticides for use in the field.

Exercise 2. Chemical insecticides: DDT, pyrethrum, "solvent," "albicthol" paste, "IP" soap, and the methods of ~~as~~ using them.

Exercise 3. Baths, and types of bath. The simplest water-heating devices available under field conditions. Shower installations used by the Soviet Army. Requirement under the provisions of the Interior Service Regulations to furnish sanitary facilities for the personnel. The role and duties of the medical personnel.

Exercise 4. The nature of the process of exterminating rodents. The part played by extermination of rodents in prophylaxis against infectious diseases. Mechanical, chemical, and biological means of exterminating rodents.

SUBJECT 6: SKIN AND VENEREAL DISEASES, AND THEIR PROPHYLAXIS

Exercise 1. Suppurative diseases of the skin and the subcutaneous cells, and the cause of such diseases. Causal agents. Prophylaxis against such diseases. Measures against microtraumatism, galled spots, and abrasions.

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Exercise 2. Parasitic and fungus diseases of the skin: scabies, tick scabies. Manifestations of the disease. Measures against pollution with lice. Fungus diseases of the skin and hair. Ringworm. Epidermophytosis of the feet; manifestations of the disease; prophylaxis.

Exercise 3. Venereal diseases. First symptoms of the disease. Complications. Prophylaxis against the disease. Measures against venereal disease.

SUBJECT 7: FUNDAMENTALS OF MEDICO-CHEMICAL PROTECTION

Exercise 1. General notions concerning toxic chemical agents, and methods of using and handling them. Rules for using the various individual means of anti-chemical protection. Putting the gas mask on a wounded soldier and patients poisoned by toxic chemical agents, and method of replacing the mask.

Exercise 2. The action of unstable toxic chemical agents upon the human organism, and measures of first, pre-medical aid in cases of poisoning. Rules for using the oxygen inhalator and the anti-smoke mixture.

Exercise 3. The action of persistent toxic chemical agents upon the human organism, and first aid measures. The composition of the individual gas casualty first aid kit. The simplest methods for decontaminating stretchers, medical transport conveyances, and areas of terrain.

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Page 117: (cont'd)**SUBJECT 8: CARE OF SICK AND WOUNDED IN A STATIONARY ESTABLISHMENT**
for

- Exercise 1. The part played by the medical corps soldier in caring of the sick and wounded. Receiving the sick and wounded at a stationary medical aid establishment. The technique of nursing treatment. Special problems of nursing treatment for the wounded. Carrying and shifting the position of a heavy patient (sick or wounded).
- Exercise 2. Basic sanitary and hygienic requirements for premises to be occupied by sick and wounded. Maintaining cleanliness of the premises. Objects required for the care of patients (sick or wounded). Changing body and bed linen for the patient (sick or wounded).
- Exercise 3. Cleansing and grooming the patient (sick or wounded). Feeding a heavy patient (sick or wounded). The simplest sorts of medical manipulation.

Page 118:**SUBJECT 9: MEDICAL FIRST AID**

Basic notions concerning wounds. Types of wounds. The dangers occasioned by a wound.

- Exercise 1. Infected wounds. Protecting wounds from infection. Bandaging materials included in the regular supplies of the Soviet Army. Rules for placing the first bandage upon a wound. The individual soldier's bandage kit; and the small and the large aseptic bandage.
- Exercise 2. Bandages upon the head and the neck and occipital region.
- Exercise 3. Bandages upon the neck and the upper part of the chest and back, thorax, upper and middle part of the abdomen, perineum, and buttocks. Methods of fastening the bandages after they are put on (putting adhesive tape on the skin under the bandage, sewing, using a kerchief).
- Exercise 4. Bandages on the upper and lower extremities. Rules for using a kerchief. Kerchief bandages.
- Exercise 5. General notions concerning the circulation of the blood. Arterial, venous, and capillary circulation, and the distinct characteristics of each. Loss of blood as the most frequent cause of death of wounded persons on the field of battle. Elementary notions concerning shock and the simplest methods of preventing it. Methods of stopping the flow of blood: pressure bandage, finger pressure upon the vessels for a length of time, putting on a tourniquet, etc. Rules and technique for putting on a tourniquet.
- Exercise 6. Basic notions concerning bone fractures. Symptoms of a fracture. Meth-

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ods of handling a wounded patient who has suffered a bone fracture. First aid for hidden and open bone fractures on the field of battle. Rules and technique for immobilization. Using emergency material for splints.

Exercise 7. Methods of giving aid for fractures caused by a projectile. First aid and special rules for transportation in cases of fracture of the ribs or jaw, in cases of injury to the spine or skull.

Exercise 8. First aid measures in case of burns, drowning, injuries by electric current or lightning, toxic effects of poisons and fungi, and snake bite. Methods and technique of artificial breathing.

SUBJECT 10: FINDING, PULLING OUT, CARRYING, AND TRANSPORTING THE WOUNDED IN COMBAT

Exercise 1. The tasks of the company's medical aid man and ^{of} the medical-corps stretcher-bearer. Incentives for the combat work of the medical aid man. Observation of the field of battle; choice of an observation point; skill in taking advantage of terrain.

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Features and in camouflaging oneself. Methods of approaching the wounded on the field of battle.

Exercise 2. Methods of removing the wounded from the battle field to the nearest cover. Making use of emergency means to remove the wounded.

Exercise 3. Entrenching and self-entrenching of the wounded. Making cover for a wounded man and for a wounded man with medical orderly. Methods used in breaking open a cover.

Exercise 4. Transporting the wounded in battle. Methods for having a wounded man carried by one medical orderly, and by two medical orderlies (making use of a carrier strap, without it, or with the aid of a stretcher). Rules for placing a wounded man on a stretcher and for taking him off the stretcher. Carrying a wounded man on a stretcher under various types of cover. Use of emergency material in lieu of stretchers.

Exercise 5. The stretcher-bearer section (personnel, equipment, duties, formations, command). Standardized stretchers of the medical corps. Stretchers made of emergency material. Slides; their structure and method of using them. Ski-borne stretchers; their structure and method of using them. Supporting and leading the wounded. Care of the wounded during a transport on stretchers. Placing the wounded on a stretcher according to the location and nature of the wound.

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Exercise 6. Special problems connected with giving first aid to wounded on the battle-field under winter-time conditions. Covering the wounded and protecting them from the frost. Getting the wounded person warmed up. Making use of sleds and of ski-borne stretchers. Evacuating wounded personnel with the aid of dog-drawn sleds.

Exercise 7. The activities of the stretcher-bearer detachment in collecting wounded after a combat action. Organizing the search for wounded in forest areas, in bush-land, during a fog, in smoke, at night, and so forth. Methods of using medical transport means in the search for wounded. Use of trained medical corps dogs in the search for wounded. Using non-medical military transportation ("empties") for the transportation of wounded. Loading and unloading medical transports.

SUBJECT 11: BURNS, FROST-BITE, AND INJURIES BY ELECTRICITY

Types of burns. The degrees of burns. The dangers connected with burns. First aid in case of burns. Acid, caustic alkali, and phosphorus burns. Symptoms of these types of burns, and the nature of the first aid to be given.

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~~Stagnation~~ Freezing. The degrees of freezing. Their symptoms. General freezing (the entire body). Its symptoms. First aid in cases of frost-bite and general freezing. Prophylactic measures in cases of frost-bite.

Injuries by electric current. Aid in cases of injury by electricity. Removing the injured person from the electric current. Rules for cutting electrified wire elements; removing the injured person. Directions for prompt evacuation. First aid to a person struck by lightning.

SUBJECT 12: HYGIENE OF FOOD AND WATER SUPPLY

Hygienic requirements as to full-value (nutritive) for military personnel. Sanitary requirements concerning maintenance of the dining rooms and of premises used for the storage of food products. The simplest methods for checking on the good quality of food products. Methods to prevent spoiling, soiling, and contamination of foods. Hygienic problems connected with the provision of drinking water. The simplest methods for determining good quality of drinking water.

C O O K S

Purpose of Training. 1. To teach the preparation of tasty, good-quality foods and working out a menu for food distribution.

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2. To develop habits of sanitation and hygiene in the preparation of foods.

INDICATIONS AS TO METHOD

The exercises will be conducted in a ~~practical manner~~ ^{practical manner.} Each practical exercise will be preceded by a discussion setting forth the purpose of the exercise and giving the theoretical information required for conducting the practical work. Special attention will be devoted in these exercises to methods of systematizing the work of preparing and giving out foods.

List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. General Information concerning Foods	2
2. Food Substances	2
3. The Calory Contents of Foods	1
4. Personal Hygiene of Kitchen and Dining Room Workers ..	2
5. Sanitary and Hygienic Requirements for the Contents of Kitchens and Dining Rooms	6
6. Sanitary and Hygienic Rules for the Handling of Food Products, and for the Preparation and Distribution of Foods	6
7. Food Poisoning and Measures for its Prevention	6
8. General Information concerning Methods of Systematizing Food Distribution in a Troop Unit	6
9. The Procedure for Obtaining the Required Food Supplies	6
10. Setting up the Distribution of Food	12
11. Organizing Food Distribution in Military Barracks.....	16
12. Organizing Food Distribution under Field Conditions ..	15
13. Handling of Meats and Preparation of Meat Dishes	16
14. Handling of Fish and Preparation of Fish Dishes	10
15. Handling of Vegetables and Greens, and Preparation of Vegetable Dishes	6
16. Dishes prepared from Flour, Groats, Beans, and Macaroni	8
17. The Vitamine Content of Foods	2
18. Demonstration Cooking of Foods	15

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SUBJECT 1: GENERAL INFORMATION CONCERNING FOODS

The importance of foods for the human organism. Requirements to be made of foods. Notions concerning assimilation of foods. The effects of culinary treatment of food products upon their assimilability.

SUBJECT 2: FOOD SUBSTANCES

Food substances required for the nutrition of man. First notions concerning albumens, fats, carbohydrates, vitamins, and mineral salts, and their role in nutrition. The content of food substances in the various food products. The part played by water and the organism's need for water.

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SUBJECT 3: THE CALORY CONTENTS OF FOODS

First notions concerning calories. The organism's energy consumption during different types of work. The calory contents of different types of food. The feeding regime. The food regime. Standards of food supply in the Soviet Army, and their characteristics as to food substances and calory content.

SUBJECT 4: PERSONAL HYGIENE OF KITCHEN AND DINING ROOM WORKERS

The importance of food hygiene. Medical prophylactic inspection of kitchen and dining room workers and of personnel on daily detail. The importance of checking on kitchen and dining-room workers to determine whether they harbor bacilli. Rules for care of the body. Rules for the wearing of special clothing.

SUBJECT 5: SANITARY AND HYGIENIC REQUIREMENTS FOR THE CONTENTS OF KITCHENS AND DINING ROOMS

Sanitary requirements for the structure of stationary kitchens and dining rooms and for the suitable location of kitchens. The contents of kitchens and their appurtenances and of the dining rooms. Contents as to dishes and other equipment. Washing dishes, cooking utensils, and other equipment. Sanitary requirements with respect to tin-ware. Measures against insects and rodents. Keeping the premises in order.

SUBJECT 6: SANITARY AND HYGIENIC RULES FOR THE HANDLING OF FOOD PRODUCTS AND FOR THE PREPARATION AND DISTRIBUTION OF FOODS

Fulfillment of sanitary and hygienic requirements in reception and delivery of products to the kitchen, and during handling and storage. Storage of half-finished products and ready foods. Storage of currently required foods.

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Page 122: (cont'd)SUBJECT 7: FOOD POISONING AND MEASURES FOR ITS PREVENTION

Food poisoning and its causes. Food poisons of chemical origin, and those of bacterial origin. Food poisoning by ergots, water pepper, henbane, and other vegetable admixtures. Poisoning by fungi. Poisoning by lead, copper, and zinc. Bacterial poisoning. Measures for the prevention of food poisonings.

SUBJECT 8: GENERAL INFORMATION CONCERNING METHODS OF SYSTEMATIZING FOOD DISTRIBUTION IN A TROOP UNIT

Tasks, organization, and functions of the sustenance and feed supplies in a troop unit. Duties and rights of the personnel in charge of the sustenance and

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Food supplies. Methods for the personnel in charge to handle the reception and distribution of supplies. The sources of supplies, and the procedure of obtaining supplies for a troop unit.

SUBJECT 9: THE PROCEDURE FOR OBTAINING THE REQUIRED FOOD SUPPLIES

Standards of food consumption by the personnel. Method of figuring the food supplies and exclusions from the rations. Procedure and methods of obtaining the required food supplies.

Special circumstances warranting the substitution of one food product for another, and the practical use of the tables of substitution.

SUBJECT 10: SETTING UP THE ^IDISTRIBUTION OF FOOD

Exercise 1. The feeding regime in a troop unit. Setting up a food supply for distribution. Method of choosing the products. Choice of menus and the distribution of products. Determining the quantities of ready food to be issued. Model food supplies.

Exercise 2. Setting up a food supply (practical exercise).

SUBJECT 11: ORGANIZING THE FOOD DISTRIBUTION IN MILITARY BARRACKS

Exercise 1. Structure and equipment of a kitchen and dining room for soldiers. Rules for operating the kitchen ranges, and ^{the} other mechanical or hand-operated equipment. Safe-practice rules. Kitchen equipment and dishes, and requirements as to their period of serviceability. Using and protecting the dishes and other equipment. Eliminating old dishes and other equipment. Construction of the simplest types of cooling shelves.

Exercise 2. Organizing the work of the cooks. The daily kitchen detail and its duties. The procedure of obtaining products and delivering them to the kitchen.

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Reception and storage of products for the kitchen. The method of storing products in the kettles. Sampling the ready food.

Exercise 3. Preparing the dining room for the reception of food. Procedure of issuing dishes and serving the tables. Issuing bread and sugar. Issuing warm foods. Establishing standards for the issue of foods, and their storage and issue. Keeping a control record relating to the kitchen. The cooks' responsibility for the quality of food preparation and for the food's proper distribution.

Page 124:SUBJECT 12: ORGANIZING FOOD DISTRIBUTION UNDER FIELD CONDITIONS

Exercise 1. Structure of the proper type of kitchen. Appurtenances, equipment, and spare-parts for the proper type of kitchen. Rules for operating a properly equipped kitchen. The storage of products, spare-parts and equipment in a properly equipped kitchen.

Exercise 2. The choice of a place for a properly established kitchen. Structure of working places for the handling and storage of the products. Supplying water and fuel. Receiving, bringing in, and storing the products. Preparing the food in a properly equipped kitchen. Special problems of preparation of food in winter-time and on the march. Delivery and distribution of foods.

SUBJECT 13: HANDLING OF MEATS AND PREPARATION OF MEAT DISHES

Exercise 1. Types of meat and meat products received for handling. Determining the quality of meats and meat products. Cutting up the carcass of large and small cattle for use as food. Suitability of the various parts and cuts for use as food. Utilizing the bones. Preparing for use: frozen meats, salted meat, sausage products, canned meats. Preparing the various half-finished products. Preparing sausage meat. Conditions and time periods for the storing of half-finished products. Standards for meat refuse and yields.

Exercise 2. Meat-processing of meats. The preparation of meat and bone bouillons. The preparation of soups. The preparation of meat sauces. The preparation of sauce dishes: goulash, ragout. Garnishing the meat dishes. Conditions and period of storage of ready dishes. Standards of yield.

HANDLING *PREPARATION*
SUBJECT 14: ~~PREPARATION~~ OF FISH AND ~~HANDLING~~ OF FISH DISHES

Exercise 1. The types of fish received for processing. Signs of poor quality in fish. Thawing out frozen fish, and soaking salted fish. How to prepare fish for

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Food poisoning and its causes. Food poisons of chemical origin, and those of bacterial origin. Food poisoning by ergots, water pepper, henbane, and other vegetable admittures. Poisoning by fungi. Poisoning by lead, copper, and zinc. Bacterial poisoning. Measures for the prevention of food poisonings.

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Tasks, organization, and functions of the sustenance and feed supplies in a troop unit. Duties and rights of the personnel in charge of the sustenance and feed supplies. Methods for the personnel in charge to handle the reception and distribution of supplies. The sources of supplies, and the procedure of obtaining supplies for a troop unit.

SUBJECT 9: THE PROCEDURE FOR OBTAINING THE REQUIRED FOOD SUPPLIES

Standards of food consumption by the personnel. Method of figuring the food supplies and exclusions from the rations. Procedure and methods of obtaining the required food supplies.

Special circumstances warranting the substitution of one food product for another, and the practical use of the tables of substitution.

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Exercise 2. Setting up a food supply (practical exercise).

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Exercise 2. Organizing the work of the cooks. The daily kitchen detail and its duties. The procedure of obtaining products and delivering them to the kitchen.

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boiling. The preparation of herring. Waste products and their uses. Standards of waste and yields. Conditions and period of storage for half-finished products.

Exercise 2. The preparation of fish bouillons and fish sauces. Boiling and frying fish. Conditions and period of storing of the ready-made dishes. Standards of yield.

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SUBJECT 15: HANDLING OF VEGETABLES AND GREENS, AND PREPARATION OF VEGETABLE DISHES

Exercise 1. Signs of good quality in vegetables. Cold preparation of vegetables. Special problems of handling frozen potatoes and other vegetables. Waste products, and means of keeping down the amount of waste. Methods of treating salted, fermented, and dried vegetables. Preparing vegetables for cooking. Rules and time limits for storing cleaned and cut vegetables.

Exercise 2. Methods of cooking vegetables. The preparation of nutritive vegetable soups. The "passerovka" (strained?) with tomato and other vegetables. Vegetable decoctions. The preparation of vegetable side dishes. Preparation of vegetable and pepper dressing. Preparation of vegetables with salad dressing. Standards of yield for vegetable dishes.

SUBJECT 16: DISHES PREPARED FROM FLOUR, GROATS, BEANS, AND MACARONI

Exercise 1. Kinds and types of groats, and signs indicative of good quality. Conditions. The preparation of groats and legumes for cooking. Rules for boiling

groats and legumes. Combining dishes from groats and legumes. Standard yields. Preparation of cereals and gruels. Preparation of cutlets and ~~meat~~ meat cakes.

Exercise 2. Kinds and types of flour. Treating flour for first ~~dishes~~ courses and ~~meat~~. Preparation of fresh and sour dough. The preparation of homemade noodles, bread, rolls and cookies. The use of soybean flour in soups and gruels. Preparing dishes from various types of macaroni products.

SUBJECT 17: THE VITAMINE CONTENT OF FOODS

Rules for the handling of vegetables and preparation of foods where the retention of vitamins is of importance. The use of greens to introduce vitamins into the food ration. How to prepare vitamin infusions. How to prepare liquid nutrient yeasts.

SUBJECT 18: DEMONSTRATION COOKING OF FOODS

Exercise 1. Preparing soups with meat, fish, canned goods, and soybean flour.

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125Page 125: (cont'd)Exercise 2: Preparing second courses consisting of meat.Exercise 3: Preparing second courses consisting of fish.Exercise 4: Preparing second courses consisting of groats.Exercise 5: Preparing second courses consisting of vegetables.Exercise 6: Preparing second courses made of flour.Page 126:Exercise 7: Preparation of sauces.Exercise 8: Preparation of cold dishes, tea, mustard.Exercise 9: Preparation of first courses with meat, fish, and canned goods in field kitchens.Exercise 10: Preparation of second courses in field kitchens.REMARK: Dishes prepared under the provisions of this program will be included among the food issued for serving.B A K E R S

- Purpose of Training.
1. To teach the men how to bake high-quality bread in stationary bakeries and field bakeries.
 2. To teach the men how to build emergency brick ovens from locally available construction material.
 3. To make a study of military baking ovens, and also the procedure for putting up and taking down field baking ovens.
 4. To familiarize the men with the methods of keeping records of the bread and raw material in the bakeries.

INDICATIONS AS TO METHOD

The exercises will be conducted in a practical manner, baking sample loaves of bread with and without leaven and by the loaf method.

All of the work done in preparing dough, baking the bread, building emergency brick ovens, and setting up field ovens must be done by the men independently, but under the direct supervision of the chief in charge of the bakery. In this connection attention must be directed chiefly to economic use of the raw material, and to correct methods of using the equipment and various assemblies.

The methods of determining the quality of the bread are taught by making use of real samples in the process of preparing the dough, baking the bread, and handling the bread.

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While the exercises are in progress to ~~learn~~ study the mechanical assemblies, operating material, equipment and structure of the ovens, the instructor in charge will give explanations and demonstrate working methods, and will assure himself that everything taught has been properly assimilated.

The practical work in the bakery must in each instance be preceded by a discussion during which the instructor in charge sets the task and explains the proper method of accomplishing it.

Page 127:List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Organization of Soviet Army Bakeries in Peace Time and in Time of War	6
2. Stationary and Field Use Baking Ovens	10
3. Implements of the Garrison Bakeries and Field Bakeries	4
4. Basic and Supplementary Raw Materials for the Bakery	16
5. Preparation of Dough, Distribution of Dough, and the Baking of Bread	50
6. Defects in the Bread, and Measures for Preventing them	6
7. Estimating the Quality of the Bread	5
8. Sanitary and Hygienic Requirements for the Baking of Bread	6
9. Preparation of the Noodles and the Drying of Sugar ("lapshi")	10
10. Keeping the Records and Accounts	12
11. Setting up and Taking down Field Bakeries. The Building of Emergency Ovens	50
TOTAL:	175

SUBJECT 1: ORGANIZATION OF SOVIET ARMY BAKERIES IN PEACE TIME AND IN TIME OF WAR

Exercise 1. Arrangements for baking the bread under field conditions, in garrisons, and in the large bakeries of the troop units. Baking the bread in civilian bakeries and baking ovens belonging to the local population. Distinguishing characteristics of field and garrison bakeries.

Exercise 2. Arrangements for supplying bread to the troop unit in winter and in

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~~summer~~. Vehicles for the transportation of bread. The procedure for distributing bread to military personnel under various conditions. The apportioned loaf of bread. Supplying the troops with bread under varying combat conditions.

SUBJECT 2: STATIONARY AND FIELD USE BAKING OVENS

Exercise 1. Classification and characteristics of bakery ovens. Structure, equipment, and operation of brazier and stationary tube ovens.

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Ovens

Exercise 2. Acquaintance with the structure and operation of ~~ovens~~ PAKh, KPN, Feyer, and FikP-2, their output, and rates of fuel expenditure. Burning liquid fuel in the oven chambers, with the aid of spraying devices.

SUBJECT 3: IMPLEMENTS OF THE GARRISON BAKERIES AND FIELD BAKERIES

Implements for garrison and field bakeries as provided for by the Tables of Organization and Equipment. The purposes for which the implements are used, the rules for using them, and methods of taking care of the implements.

SUBJECT 4: BASIC AND SUPPLEMENTARY RAW MATERIALS FOR THE BAKERY

Exercise 1. Flour. Brief information concerning the milling of grain at the stationary and mobile grain mills. Grists of flour. The yield of flour. Types of flour. First notions concerning the chemical composition of flour. Estimating the quality of flour by organoleptic indications, and with the aid of physico-chemical indicators. First notions concerning the baking properties of flour. "Strong" flour and "weak" flour. Flour from intergrown and frost-bitten grain and freshly milled flour. Preparation of ~~introducing~~ the sifted (mixed) flour.

Exercise 2. Storing the flour. Changing the quality of the flour in keeping with the period and conditions of storage. Measures against animal pests that destroy flour. Preparing the flour for starting production. Mixing and bolting the flour. Test bolting. Cleaning the empty bags.

Exercise 3. Yeast. The function of yeast for softening up the dough. Testing the quality of the yeast by organoleptic indications. Methods for determining the raising power of the yeast. Standards of expenditure of yeast in preparing the dough.

Exercise 4. The water used in baking bread. Understanding about the hardness of water, and its influence upon the physical properties of the dough. Filtering the water, and the temperature regime. The function of soda in preparing the dough and baking the bread. Types of vegetable and mineral oils used in greasing the baking

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forms used for the bread. Indicators of quality. Preparing the emulsion. Standards for the expenditure of vegetable and mineral oils in the baking of bread.

SUBJECT 5: PREPARATION OF DOUGH, DISTRIBUTION OF DOUGH, AND THE BAKING OF BREAD

Exercise 1. Mixing and kneading the dough. Determining temperatures for mixing

the dough. Leavening the dough by biochemical, chemical, and physical means. The

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basic methods and recipes for the preparation of wheat and rye dough. The temperature and acid regime. Fermentation of the ~~fermented dough~~ ^{leaven, the head rising mixture,} and the mixed dough. The time required for leavening, and signs to indicate the readiness of leaven, ^{rising mixture,} head, and mixed dough.

Exercise 2. Bringing out and renewing (refreshing) the yeast. Methods of using the yeast. The method of preparing ~~boiled (?) dough, and its use.~~ ^{boiled (?) dough, and its use.} The advantages of boiled bread.

Exercise 3. Distributing the dough. Preparing the forms. Determining the weight of the slice of dough. Forming the apportioned loaf. Allowing the dough to stand. The processes that go on while the dough is allowed to stand. Factors that influence the length of time for which the dough should be allowed to stand. Signs that the dough is ready when it is allowed to stand.

Exercise 4. Baking the dough. Processes that go on in the bread while it is being baked. How to treat the dough while it is sitting in the oven. The value of moistening the oven chamber while the bread is baking. Length of baking time and the temperature regime for the oven chamber. Determining whether the bread is ready (end of the baking process). ^{Changes of weight produced in} ~~Factors that influence the loss of weight of the bread and factors that affect their extent and degree.~~ Standards for the loss of weight. Methods of increasing the loss of weight without lowering the quality of the finished bread. The procedure for a sample baking to determine the loss of weight of the bread.

Exercise 5. Storing and transporting the bread. Methods of storing hot and cooled bread. The effects produced by various factors upon loss of bread during the cooling period and storage. The drying out of bread. Storage conditions that help to avoid the drying out of the bread. The growing stale of bread. Methods of transporting the bread.

Exercise 6. How to conduct sample bakings with preparation of rye bread with yeast, rising mixture, and with addition of boiled dough (?).

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Exercise 7. How to conduct sample bakings of wheat bread, with and without leaven. Preparation of liquid yeast and baking bread with them.

Exercise 8. How to conduct sample bakings in the preparation of rye bread with admixture of barley, oat, and maize flour. The quantity of admixtures used. Distinguishing characteristics of the method of conducting the technological process. The effect of the admixtures upon the quality of the bread.

Exercise 9. How to conduct sample bakings to determine losses of weight in baking. How to determine the amount of the drying of the bread.

SUBJECT 6: DEFECTS IN THE BREAD, AND MEASURES FOR PREVENTING THEM

Defects of the bread caused by the following factors: quality of the raw material; improper preparation, forming, and settling of the dough; improper baking, storage, and transportation of the bread. Preventing the occurrence of defects in the bread. How to make use of bread of poor quality.

SUBJECT 7: ESTIMATING THE QUALITY OF THE BREAD

Organoleptic methods of determining the quality of the bread. Laboratory methods for determining the quality of the bread. Government standards for bread.

SUBJECT 8: SANITARY AND HYGIENIC REQUIREMENTS FOR THE BAKING OF BREAD

Exercise 1. Personal hygiene of the baker. Medical inspection of bakers. Sanitary and hygienic requirements as regards maintenance of the premises, and of the bakery installations and equipment.

Exercise 2. Checking on the quality of the flour, salt, water, oils and fats. Check on the bolting of the flour and during the preparation of the dough. Sanitary requirements for the storage and moving of flour and dough.

SUBJECT 9: PREPARATION OF "LAPCHI" (noodles ?) AND THE DRYING OF ~~SHAKH~~ BISCUIT

Exercise 1. The preparation of lapchi. Preparing the dough for lapchi. Kneading the dough. ~~Rolling~~ Drying and packing the lapchi. Cutting the lapchi. Indicators of quality and All-Union State Standards for lapchi.

Exercise 2. Preparation of biscuit ("sukhar"). Special characteristics of the preparation of dough for the baking of biscuit bread. Time period of storage of biscuit before cutting. Cutting the bread and putting the slices in boxes. Drying the biscuits. Temperature conditions and time of drying required for biscuits. Types of

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dryer. Sorting and packing the biscuits. Qualitative indicators for biscuit, and the All-State Union Standards for biscuit. The storage of biscuit.

Page 131:SUBJECT 10: KEEPING THE RECORDS AND ACCOUNTS

Exercise 1. Rules for keeping the production record. Standards for the expenditure of raw material for the baking of bread. Standards of loss of weight for all types of bread.

Exercise 2. Computing the dry-out by reference to the actual moisture of the flour. Determining the bread yield. The procedure for issuing bread to the store-rooms. Accounting for waste material.

SUBJECT 11: SETTING UP AND TAKING DOWN FIELD BAKERIES. BUILDING OF EMERGENCY OVENS.

Exercise 1. The procedure for shifting the position of a field bakery. Requirements to be made of a location to which a bakery is to be shifted. Looking around for a location. The procedure for assigning a location to the detachment, and the procedure for using the material equipment. Setting up the oven. The time to be allowed for setting up and taking down a field bakery. Special problems connected with the setting up and functioning of a field bakery under winter conditions. The procedure for taking down a field bakery.

Exercise 2. Basic requirements to consider in choosing a location to set up a supplementary brick oven. Constructing a sphere-shaped single-level supplementary brick oven. Preparing the stove for the baking of bread.

Exercise 3. Choosing a location to set up a Feier (or: Feyer) oven.

Preparing a space for

Exercise 4. Preparing the dough and baking the bread when use is made of a supplementary brick oven, a Feyer oven, or a Pákh (or KPM).

T A I L O R S

Purpose of Training. 1. To give general information concerning organization of the clothing supply in the troop unit.

2. To develop practical habits for repairs of military clothing.

INDICATIONS AS TO METHOD

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The exercises dealing with the general problems related to organization of the clothing supply are conducted in the form of discussions, making use of visual aids. The repair exercises are conducted in the shops, with practical demonstrations of the working processes. Problems that have to do with the records and accounting of the shop are studied in a practical manner by preparing and making out documents.

Page 132:List of Subjects and Time spent on each

Designation of Subjects	Number of Hours
1. Tasks and Organization of the Clothing Supply	2
2. Supplying the Personnel with Clothing and Personnel Equipment	10
3. Use and Storage of Clothing and Personal Equipment	10
4. Clothing Supplies for a Troop Unit of an Army in Action	6
5. Military Clothing	25
6. Organization of Clothing Repairs in the Troop Unit	8
7. How to Prepare the Clothing for Repairs	6
8. How to put on Patches	6
9. Replacing Individual Parts	6
10. Repairs of Seams, Button Holes, and Fastenings	8
11. The Inspection and Marking of fully Repaired Clothing ..	6
12. Special Characteristics of the Repairs of Headgear, Knitted Articles, Fur Coats and other Articles of Fur	10
13. Adjustment of Articles of Military Clothing	8
14. Records and Accounting at the Tailor Shop	8
15. How to make Military Uniform Repairs of Medium Difficulty and how to Fit Articles of Military Clothing (Practical Work)	46
TOTAL:	165

SUBJECT 1: TASKS AND ORGANIZATION OF THE CLOTHING SUPPLY

Tasks, organization, and functions of the clothing supply in the troop unit.

The duties of junior specialists in clothing supplies.

SUBJECT 2: SUPPLYING THE PERSONNEL WITH CLOTHING AND PERSONAL EQUIPMENT

Exercise 1. The rights of enlisted men to receive clothing. Standards of supply lasting qualities.
for the individual, and standard ~~times and schedules~~ Priorities and schedules for

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issues of clothing. The procedure for issuing the clothing. Issuing a ~~new~~ ^{first} outfit of clothing (for recruits).

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Exercise 2. Issues of clothing in cases of transfer to another unit and in cases of discharge to a lengthy furlough. How to ^{replace} ~~supply~~ clothing that is worn out before its time, or torn, or otherwise spoiled. Supplying personnel with ~~special~~ clothing and with bed-wear.

SUBJECT 3: USE AND STORAGE OF CLOTHING AND PERSONAL EQUIPMENT

Exercise 1. To protect property is one of the military duties of every member of the armed services. Measures for the protection of property in the smaller troop units. The marking of articles of clothing. Checking on the use and protection of property. Discarding property. Making use of defective property.

Exercise 2. Structure and equipment of the military baggage-train and ^(clothing) ~~store-room~~. The procedure of receiving, storing, and issuing property at the store-room. Storing property at the small troop units.

SUBJECT 4: CLOTHING SUPPLIES FOR A TROOP UNIT OF AN ARMY IN ACTION

Standards and procedure for supplying property from the clothing store. Seasonal replacements of clothing. The supply of clothing for the sick and wounded that have been evacuated to the rear zone. Organization of clothing repairs.

SUBJECT 5: MILITARY CLOTHING

Exercise 1. Types and assortments of cloth that enter into the making of articles of military clothing; their criteria and distinguishing characteristics. The simplest methods of determining the qualities of cloth. The characteristics of accessory materials and furnishings required for making and repairing articles of military clothing.

Exercise 2. The requirements to be made of the uniforms. Types of uniform, and the articles of which they are composed. Description of the principal articles of the uniform. Length and sizes.

Exercise 3. Defects of articles of the uniform. Rules for putting on and taking off the uniforms. Care and protection of the articles of clothing. Discarding overcoats, pullover shirts, and breeches.

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Exercise 4. Types of special clothing. Description of the principal articles of special clothing. Defects of articles of special clothing. Rules for using and protecting articles of special clothing.

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Exercise 5. Underclothing for enlisted men; description of articles of underclothing. Sizes of underclothing. Characteristics of articles of bed-wear.

SUBJECT 6: ORGANIZATION OF CLOTHING REPAIRS IN TROOP UNITS

Exercise 1. The importance of making timely high-quality repairs. The categories of repairs. Clothing repairs in the small troop units. Supplying small troop units with the materials required for clothing repairs.

Exercise 2. The repair shop of a troop unit (regiment, etc.), its structure and equipment. Providing materials for the clothing repair shop. Standards for the issue of repair materials. The procedure for giving property into repairs and receiving it back.

Exercise 3. Planning the work of the clothing repair shop. Standard amounts of work to be accomplished. Internal arrangements of the shop. Organizing the work of tailor shop. The shop's responsibility for the quality of repairs.

SUBJECT 7: HOW TO PREPARE THE CLOTHING FOR REPAIRS

Requirements to be made of articles of uniform given into repairs. The procedure of choosing and preparing articles of clothing for repairs. Ripping of seams. Stitching worn-out parts together. Cleaning, steaming, and ~~ironing~~ pressing the ripped articles. Choice of repair materials as to quality and color.

SUBJECT 8: HOW TO PUT ON PATCHES

Cutting patches to size and pattern. Putting on the patches by means of stitching, sewing on from above, and sewing on from below.

SUBJECT 9: REPLACING INDIVIDUAL PARTS

Cutting out individual parts to replace parts that are worn out. Preparing and sewing such parts (sleeves, collars) for the overcoat and for the pull-over shirt ("gimnastyorka").

SUBJECT 10: REPAIRS OF SEAMS, BUTTON HOLES, AND FASTENINGS

Repairing seams that are ripped open. Whip-stitching button holes. Repairs of fastenings. Sewing on buttons.

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SUBJECT 11: THE INSPECTION AND MARKING OF FULLY REPAIRED CLOTHING

Inspection of the fully repaired clothing, and determining its quality. Marking the articles of clothing. Putting the articles in ~~packages~~ bundles and wrappings.

SUBJECT 12: SPECIAL CHARACTERISTICS OF THE REPAIRS OF HEADGEAR, KNITTED ARTICLES, FUR COATS AND OTHER ARTICLES OF FUR

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Choosing the repair material. The technique of repairs. Ironing the garrison cap. Putting ear-muffs in order. Repairs on tents.

SUBJECT 13: ADJUSTMENT OF ARTICLES OF MILITARY CLOTHING

Tables of sizes. Determining size and number of measurement. First notions concerning various characteristics of the texture of cloth. Methods to be used in the selection of clothing. How to fit clothing. Checking the correctness of adjusting the sizes and fit of clothing.

SUBJECT 14: Book-Keeping for the Shop

Exercise 1. Accounting forms used for the shop. Rules for making out the documents and keeping book of the property. Methods of storing the accounting documents.

Exercise 2. How to keep accounts of repair materials, inventories of equipment, and of material in repair.

SHOEMAKERS

Purpose of training. 1. To give general information concerning the manner in which clothing supply is organizing in units of the regimental or battalion type.

2. To teach the processes of making shoe repairs.

INDICATIONS AS TO METHOD

Exercises to give instruction in the general problems of clothing supply organization will be conducted in the form of discussions ~~and~~ with the help of visual aids. Types of Army footwear are demonstrated by making use of the corresponding specimens. Exercises in shoe repairs will be conducted in the shop, giving practical demonstrations of the methods to be employed.

The methods of book-keeping for the shop will be taught by ~~means of~~ ^{means of} practical exercises assembling the requisite data and preparing the documents.

Page 136:List of Subjects and Time spent on each

<u>No.</u>	<u>Designation of Subject</u>	<u>Number of Hours</u>
1.	Tasks and Organization of the Clothing Supply in units of the regimental or battalion type	2
2.	Provision of Clothing Supplies to the Personnel	6
3.	Utilization and Storage of the Clothing Supplies	6
4.	Clothing Supplies in the Minor Units of an Army in Action	4

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List of Subjects and Time spent on each

<u>Designation of Subject</u>	<u>Number of Hours</u>
5. Army Footwear	8
6. Organization of Shoe Repairs in Units of the Regimental or Battalion Type.....	8
7. Repair Materials	4
8. Sewing Seams and Putting on Patches	6
9. Attaching Shoe Soles	8
10. Preparation of and Attaching the Heel	4
11. Processes of Giving Finish to the Footwear	4
12. Repairs on Felt Footwear	6
13. The Procedure of Recurring Repair ^{air} Footwear ^{ed}	4
14. How to Fit Shoes	4
15. Book-Keeping for the Shoe-Repair Shop	6
16. Preparing and Sewing in the Inner Sole and Half-Sole ...	10
17. Fastening down the Half-Finished Products and Changing ^{Outside Bottoms and Fasteners} their Position	14
18. Fastening the Underside	15
19. Chosing and Fastening the Heel	6
20. Methods and Nature of Medium Repairs on Leather and Felt Footwear (Practical Work)	40
TOTAL.....	165

SUBJECT 1: Tasks and Organization of the Clothing Supply in Units of the Regimental or Battalion Type

Tasks, organization, and functions of the clothing supply in units of the regimental or battalion type. Duties of junior specialists in clothing supply. Proceedings and duties for the duties of shop supervisor.

SUBJECT 2: Provision of Clothing Supplies to the Personnel

Exercise 1. The private soldier's and the NCO's rights to receive clothing. The standards of supply and the period of time allowed for wear. Priorities and time limits for the issue of clothing supplies. The procedure of issuing the supplies.

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Issuing a new (recruit's) outfit of clothing supplies.

Exercise 2. The issue of clothing supplies at the time of transfer to another unit

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or grant of a lengthy furlough. Procedure for the issue of clothing when property is worn out, torn, or otherwise spoiled. The procedure of supplying special clothing equipment and bed ^{linen} ~~clothing~~.

SUBJECT 3: Utilization and Storage of Clothing Supplies

Exercise 1. To protect property is the military duty of every service-man. Measures for protecting property at the company level and below. Marking individual pieces of clothing property. Checking on use and ⁷/₁₂ protection of the property. Discarding damaged property. Making use of damaged property.

Exercise 2. Structure and equipment of military clothing-supply storerooms. The procedure for receiving, storing, and issuing property at the storeroom. The storage of property at units of company level and below.

SUBJECT 4: Clothing Supplies in the Minor Units of an Army in action.

Standards and procedure for the issue of clothing property. Seasonal changes of clothing property. Supply of clothing property for the sick and wounded evacuated to the rear zones. Organization for repairs of clothing property. Bath and laundry service under field conditions.

SUBJECT 5: Army Footwear

Exercise 1. Types of leather material used in making Army footwear. Properties of the different leather materials. The simplest methods for determining the quality of leather materials.

Types of leather substitutes used in manufacturing Army footwear. The characteristics of leather substitutes and methods of determining their quality. Shoemaker's supplies and supplementary materials, methods of determining their quality.

Exercise 2. Requirements to be made with respect to Army footwear. Types of Army footwear. Methods of sewing boots and shoes. Composition of the tool set for cutting boots and shoes. Determining sizes of footwear. Rules for putting on and taking off footwear. Methods of care and storage of footwear. Discarding leather footwear.

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Exercise 3. Types of felt footwear and methods of making it. Determining its sizes and qualities. Rules for care and storage of felt footwear. Discarding felt footwear.

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Page 138: (cont'd)SUBJECT 6: Organization of Shoe Repairs in Units of the Regimental or Battalion Type

Exercise 1. The importance of promptness and good quality in the repairs of footwear. Categories of repair on footwear. Repairs of footwear in company and smaller units. Supplying tools and repair and maintenance material to shoemakers in company and smaller units. The repair shop of units of the regimental and battalion type; structure and equipment of these shops. Supplying the shop with repair and maintenance material. Standards for the delivery of repair and maintenance materials. The procedure of giving ~~handing~~ footwear into repairs and receiving it back.

Exercise 2. Production plan for the shop. Standards of production. Internal order of work at the shop. Organizing the work of the shop. The shop's responsibility for the quality of its repairs.

SUBJECT 7: Repair Materials

Basic, supplementary, and accessory materials. Measuring and cutting the leather, rubber plate, synthetic leather, and kersey. Methods of preparing the pitched thread. Standards for the expenditure of materials.

SUBJECT 8: Sewing Seams and Putting on Patches

The shape and dimensions of patches. Putting patches on footwear. Repairs of broken seams.

SUBJECT 9: Attaching Shoe Soles

Methods and purpose of softening the leather. Smoothing out the softened leather. Fastening the sole with wooden pegs and metal nails. How to ~~fasten~~ ^{repair} the linings, bladders, and cuts. Fastening the sole under the hydraulic press.

SUBJECT 10: Preparing and Attaching the Heel

The importance of the heel on footwear. Preparing the heel. Sewing on the counter in preparation. Defects of attachment (sewing on).

SUBJECT 11: Processes of Giving Finish to the Footwear

Cutting the edges of the sole and heel. Grinding, punicing, blackening and polishing the cut edges of the sole and heel. Finishing process with the muffler.

Dressing and cleaning the footwear. Defects of finish.

Page 139:SUBJECT 12: Repairs on Felt Footwear

Preparing the felt for repairs. Repair and maintenance materials. Preparing

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Felt soles from new felt and from felt boots of the 4th Category. Sewing felt boots. Sewing on the heels. Determining the quality and size of repaired felt boots.

SUBJECT 13: The Process of Receiving Repaired Footwear

Requirements to be made of repaired footwear. Inspection and determination of the quality of the repairs. Determining the size. Marking. Packing the footwear.

SUBJECT 14: How to Fit Shoes

Determining length and width by measurement. Rules for use of the device for measuring feet. Methods of choosing and adjusting ~~shoes~~ footwear. How to wind the linen foot wraps. Methods for determining whether the ~~sh~~ footwear is properly fitted. Special characteristics of the fitting of felt footwear.

SUBJECT 15: Book-Keeping for the Shoe-Repair Shop

Exercise 1. Methods of book-keeping for the shop. Rules for making out the documents and keeping books for the ~~shop~~ property. Storage of the accounting documents.

Exercise 2. Accounting for the repair-and-maintenance materials. Accounting for the property received for repair.

Exercise 3. Accounting for installations and equipment. Auditing the shop.

SUBJECT 16: Preparing and Sewing in the Inner Sole and Half-Sole

The importance of the inner sole for footwear. Preparing the inner sole. Sewing in the inner sole and half-sole. Defects of the sewing-in.

SUBJECT 17: Fastening down the Outside Patterns and Decorations
trimmings

Attaching the rear seam. Riveting fixtures to the heel. Putting on ~~shoes~~ while the shoe is on the foot. Cutting the edges of trimmings. Putting on the edge. Defective attachment.

SUBJECT 18: Fastening the Underside

The inner sole of the footwear. Putting down the underside. Fastening the underside with wooden pins and sewing devices. Defects in the fastening.

Page 140:SUBJECT 19: Choosing and Fastening the Heel

Choosing ready-finished and unfinished heels. Leveling out the heel. Fastening the heel. Defects of the fastening.

H O R S E S H O E SPurpose of Training

1. To teach the soldier how to shoe a horse.
2. To teach how to make horseshoes by hand.

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3. To enable the soldier to give first aid to a sick or wounded horse.

INDICATIONS AS TO METHOD

The theoretical exercises will be conducted in the form of discussions, with extensive use of visual devices. The practical exercises must train the soldier correctly, quickly, and in a simple manner to shoe horses, to make horseshoes by hand, and to give first aid to a sick or wounded horse.

List of Subjects and Time spent on each

<u>Designation of Subject</u>	<u>Number of Hours</u>
1. Horseshoeing in the Soviet Army	1
2. The Anatomy and Physiology of the Lower Part of the Horse's Leg	20
3. Putting the Horse's Legs in Position	6
4. Rules for Shoeing Horses	6
5. Shoeing Horses with Hoofs in Proper Condition	30
6. Diseased Conditions of the Horse's Leg	6
7. Shoeing Horses that ^{have} cut themselves and are impeded hoofs	8
8. Shoeing defective or sick horses	18
9. First Aid to a Wounded Horse	10
10. First Aid to Horses affected by Chemical Means of Warfare	6
11. Diseases of the Digestive Organs	1
12. Infectious Diseases of the Horse	10
13. Arrangement of the Horseshoeing Shop and its Equipment	10
14. Making Horseshoes by Hand	30
TOTAL 170	

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SUBJECT 1: HORSESHOEING IN THE SOVIET ARMY

Exercise 1. Priorities in shoeing the horses. Time allowed for changing horse-shoes. The duties of the horse-shoer.

Exercise 2. Organization of the horseshoeing shop in the troop unit. Tools of the smith and horseshoer. Materials for the work of a smith-shop.

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140Page 141: (cont'd)SUBJECT 2: The Anatomy and Physiology of the Lower Part of the Horse's LegExercise 1: Bones, ligaments, and tendons of the lower part of the horse's leg.Exercise 2: The circulatory and the nervous system of the horse's digit. The hoof and its structure.Exercise 3: The sensitive parts of the hoof. The growth of the hoof. Conditions favorable or unfavorable to the growth of the horny part of the horse's foot.Exercise 4: The mechanism of the hoof, and its significance. The effect of improper horseshoeing upon the growth of the hoof.SUBJECT 3: The Structure of the Horse's LegExercise 1. Proper and improper structure of the horse's leg. The influence of the structure of the horse's leg upon the shape of the hoof. ^{Ascertaining} ~~Determining~~ the structure of the horse's leg.Exercise 2. Shoeing for the most frequently encountered deviations in the structure of the horse's leg.SUBJECT 4: Rules for Shoeing HorsesExercise 1. Inspecting the horses before shoeing them, and methods of handling the horse while the shoeing is in progress. Methods of holding the horse in position.Exercise 2. Preparing the hoof for shoeing. Choice and preparation of the horseshoe.SUBJECT 5: Shoeing Horses with Hoofs in Proper ConditionExercise 1. Cleaning the hoof, preparing the horseshoe, fastening the horseshoe. Judging the finished job.Exercise 2. Shoeing of baggage-train horses with winter shoeing and with summer shoeing.Exercise 3. Shoeing of saddle horses with winter shoeing and with summer shoeing.SUBJECT 6: Diseased Conditions of the Horse's LegExercise 1. Rheumatic inflammation of the hoof, malanders, rotting of the frog.Page 142:
Exercise 2: Kneading the sole, injecting (piercing) the frog, tightening and notching the rim.SUBJECT 7: Shoeing Horses that have Cut themselves or are ImpededExercise 1. Practical methods of shoeing a horse that has cut itself.Exercise 2. Practical methods of shoeing a horse that is clogged up.NSA FORM
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SUBJECT 8: Shoeing Defective or Sick Hoofs

Exercise 1. Causes of the formation of sick or defective hoofs, and the corresponding preventive measures.

Exercise 2. Types of horseshoes (flat, fully-convex, compressed, slanting, curved) and methods of putting them on the hoof.

Exercise 3. Other types of horseshoe (sharp, faced -- with soft and brittle horn) and methods of putting them on the hoof.

Exercise 4. Shoeing a hoof with lengthwise fissures in the horn of the hoof, with cracks.

Exercise 5. Shoeing a hoof with loose wall, with hollow wall.

SUBJECT 9: First Aid to a Wounded Horse

Exercise 1. Stopping the flow of blood. Placing a bandage on various parts of the body of the horse.

Exercise 2. First aid in case of ^{injured} ~~damaged~~ withers, injured back. Evacuation of wounded horses.

SUBJECT 10: First Aid to Horses Affected by Chemical Means of Warfare.

Exercise 1. Indications that the horse has been gassed. Giving first aid to a horse that has been gassed, or otherwise contaminated by a chemical agent.

Exercise 2. The means of antichemical defense for horses, and rules for using them. Decontaminating the horseshoeing tools.

SUBJECT 11: Diseases of the Digestive Organs

Exercise 1. The principal types of "colic," and their symptoms.

Exercise 2. Giving treatment in case of a colic, and measures of prevention.

SUBJECT 12: ^{Contagious} Infectious Diseases of the Horse

Exercise 1. Causes of incidence of ^{Contagious} ~~infectious~~ diseases; measures for preventing an outbreak of infectious diseases.

~~Exercise 2.~~ Page 143:

Exercise 2. Principal symptoms of some of the infectious diseases: glanders, malignant anthrax, strangles, ringworm, lockjaw.

SUBJECT 13: Arrangement of the Horseshoeing Shop and its Equipment

Exercise 1: Types of forge, their construction, forge tools. Anvils, their choice, their installation. Horseshoeing tools. Materials for horseshoeing work: iron, steel, coal; their various types and quality.

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Exercise 2. Book-keeping and accountability at the horseshoeing shop. Preparing and submitting statements of horseshoeing material. The procedure of discarding horseshoeing tools and materials, and writing them off on the accounts. The duties of the horseshoeing instructor.

SUBJECT 14: Making Horseshoes by Hand

Making horseshoes: smooth, for saddle horses, with pins; for draft horses, with pins; with shortened, tapering catch and pin slanted backward, for the rear hoof of an impeded horse; with slanting side branch; horseshoe for use in the mountains.

Carriage Drivers, Pack Train Men
WAGONERS (PERSONNEL TRANSPORT, FREIGHT TRANSPORT)

Purpose of Training. 1. To teach the proper methods of maintenance and use of the horse, proper care of the horse, and methods of first aid in case of wounds (injuries). To give basic notions concerning the diseases of the horse and measures of their prevention.

2. To teach the structure of sleighs, carriages, trucks, kitchen, heaters; and methods of using them and taking care of them.

3. To teach the methods of taking charge of freight, passengers, and evacuation.

INDICATIONS AS TO METHOD

Wagoners (Personnel Transport, Freight Transport) are not called in for the special semi-monthly muster. Arrangements for their training are made directly by the regular units (small units).

All of the exercises are conducted in a practical manner, and it is obligatory to demonstrate all the methods for care of the horse and team (freight), and for maintenance and use of the train.

P-14 144List of Subjects and Time allowed for each

	Designation of Subject	Number of Hours
1.	<i>100 11.11.11</i> Attention of Horses	10
2.	Care of the Horse	10
3.	Feeding and Watering the Horse	30
4.	The Horse's Work	20
5.	First Aid to Sick and Wounded Horses	29
6.	Harness, Pack-Loads, Horse Equipment, and <i>harnessing</i> Saddling (Packing) the Horse	16

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143List of Subjects and Time allowed for each

Designation of Subject	Number of Hours
7. The Structure of Sleighs and Wagons	8
8. Composition, Use, and Repairs of the Wagon (Pack) Train	14
9. Placing Loads on Sleighs, Wagons, and Pack Saddles....	8
10. Controlling the Horse	6
11. Rules for Moving the Train and Arranging it at a Stop	20
12. Field Kitchens and Boilers	8
13. Organization of Transports and Evacuation in the Troop Unit	20
TOTAL: 160	

REMARK:

Drivers do not study Subject 12; they devote 8 hours to the study of Subject 4, and 12 hours to the study of Subject 5.

SUBJECT 1: Billeting the Horses

- Exercise 1. Construction of stables for horses. Billeting the horses in the stables. Rules for maintaining cleanliness in the stables, and repairs of earthen floor. Mending tethers and keeping them in order. duty officer (or NCO)
- Exercise 2. The internal order at a stable. Responsibilities of the ~~stable officer~~ and of the stable orderly.
- Exercise 3. Billeting the horses at a camp, in cities or villages, and during field exercises.

SUBJECT 2: Care of the Horse

- Exercise 1. The importance of clean skin for the health of the horse. The rules for, and technique of, cleaning a horse. Grooming the horse. Care of the horse's legs.
- Exercise 2. Individual care of the horse. Rules for hanging up and protecting the articles required for individual care of the horse. Bathing, sponging, and washing down the horse.
- Exercise 3. Practical lessons in the technique of cleaning and grooming the horse.

SUBJECT 3: Feeding and Watering the Horse

- Exercise 1. Basic foods for an army horse. Established forage standards. Individual forage standards. Substitutes for the basic foods. Rules for substituting one

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food to take the place of another. The importance of vitamins in the food for horses.

Exercise 2. The schedule ~~(times)~~ for feeding the horses. Preparing the feed for consumption. Time schedule for feeding. Rules for watering a horse.

Exercise 3. Feeding and watering horses under field conditions. Keeping horses on grass and pasture. Making use of locally available feed stuffs.

SUBJECT 4: The Horse's Work

Exercise 1. Basic notions concerning the work of the horse. The effect of work upon the horse's organism. Preparing the horse for work. Breaking the horse into its work gradually.

Exercise 2. Taking care of the horse during a march. Inspecting the horse before it is put to work; observing the horse while on the march; rules of movement. Places on the horse's body that are most likely to be injured by the harness. Measures for preventing such injuries. Care of the horse during halts and after work. Taking care of the simplest disorders of the horse's shoeing.

SUBJECT 5: First Aid to Sick and Wounded Horses

Exercise 1. Colics, and their causes and prevention. Rheumatic inflammation of the hoof. Sunstroke and heatstroke.

Exercise 2. Skin diseases resulting from inadequate care and maintenance. Wounds and contusions. Giving first aid to horses in case of a wound or of poisoning by chemical warfare agents.

Exercise 3. Basic symptoms of various contagious diseases: glanders, malignant anthrax, infectious anemia, ringworm, mange, strangles. A general understanding of the causes of appearance and spread of contagious diseases among animals.

Exercise 4. Measures for the prevention and liquidation of contagious diseases.

Rules for dealing with horses that are suffering from a contagious disease. Professional veterinary assistance. The procedure for sending a sick horse to a veterinary hospital (veterinary field station).

SUBJECT 6: Harness, Pack-Loads, Horse Equipment, and Harnessing the Horse

Exercise 1: (Only for Wagon-Train Personnel and Drivers). The harness for a single horse, for a team of two, and for coupled teams. The parts of the harness, their

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purpose, and the method of getting them ready. Rules for disassembling and reassembling the harness. Straightening out disorders and making minor repairs.

Exercise 2. (Only for pack-personnel and drivers.) The pack-saddle (riding saddle). The structure of the pack-saddle. ~~(riding saddle)~~ Disassembly, reassembly and supplementing the pack-saddle. Devices for carrying various types of pack-load.

Exercise 3. Saddle-maker's tools and their use.

Exercise 4. Practical methods for placing and removing the pack on horses. Saddling and unsaddling.

SUBJECT 7: The Structure of Sleighs and Wagons

Exercise 1. The structure of sleighs and wagons; the parts and their uses.

Exercise 2. Discovering defects on sleighs and wagons. Making minor repairs.

SUBJECT 8: Composition, OPERATION, And Repairs of the Wagon
(Pack) Train

Exercise 1. Composition and maintenance of the wagon (pack) train in various kinds of weather. Care of the transport's wagon (pack) loads. Periodic inspections. Cleaning, painting, and greasing the wagon (pack-saddle) and spare-parts (devices).

Exercise 2. Classification of wagon (pack-saddle) repair. The procedure for having pack-horse repairs made. The duties of the train attendant (wagoneer, ~~pack-horse~~ attendant) to have ~~make~~ repairs made to avoid damage.

SUBJECT 9: Placing Loads on Sleighs, Wagons, and Pack-Saddles

The freight-carrying capacity of sleighs and wagons. Standard loads. ^{and} Methods of loading ammunition, boxes containing armament or spare-parts, on sleighs, wagons, and pack-saddles. How to load food-supplies, feed stores, and packing containers. Rules for transporting artillery freight. Measures to prevent loads from being spoiled (breakage, bad weather) etc.).

Page 147: SUBJECT 10: Controlling the ~~Saddling~~ Horse

Exercise 1. Mounting and dismounting, for wagoners. Holding the reins. Choosing horses and giving them a trial run.

Exercise 2. Movement along a straight line, turns, and stops. Halts, and backing up.

SUBJECT 11: Rules for Moving the Train and Arranging it at a Stop

Exercise 1. Extending the train into a marching column. Procedure (sequence) of movement. Rest halts. Camouflaging while on the march, and during a halt. Measures for protection of the load. Rules for disposing of the loads at a halt. Construction

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of the simplest type of cover for horses and ~~firefight~~ wagons. ~~Handling operations through~~

Exercise 2. Special characteristics of movement over difficult terrain, over mountain roads and trails, at night, during the season of melting snow and bad roads, during the winter season. Overcoming upgrades and downgrades. Moving through ravines, gulches, ditches and moats, and over embankments, ~~and~~ causeways and bridges. Crossing water-courses with the aid of floating equipment, through fords, and over ice.

Exercise 3. Measures to be taken for antiaircraft and antitank defense, and for the antichemical protection of personnel, animals, and freight. Action in the event of an enemy attack.

SUBJECT 12. Field Kitchens and Boilers

Exercise 1. Single-boiler, double-boiler, and three-boiler field kitchens, ~~mobile steam~~ ~~boilers~~ ^(mobile steam). Their structure and mode of operation. Accessories, equipment, and spare-parts for field kitchens.

Exercise 2. Storing the products, spare-parts, and accessories. Care and protection of field kitchens and mobile steam boilers. Defects of field kitchens and mobile steam boilers, and ways of eliminating them. Making minor repairs.

SUBJECT 13. Organisation of Transports and Evacuation in ~~Transportation~~ Troop Units

Exercise 1. The procedure of receiving freight and making out the necessary documents (Transportation request, authorization, loading sheet, carte blanche). The procedure for delivering freight into storage.

Exercise 2. The system of transports going directly to the troops, and the procedure for evacuating the sick and wounded.

C L E R K S

Purpose of Training. 1. To study the fundamentals of military property organization in the Soviet Army.

2. To develop practical habits in preparing, checking, guarding, and transmitting classified and unclassified documents, and in organizing

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and keeping books for various types of property and for accounting purposes.

3. To teach the soldier how to make enumerations of items of property, and how to operate computing devices and typewriters.

INDICATIONS AS TO METHOD

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The study of military office work, and military book-keeping and accounting is conducted by means of preparation and writing out of official papers, book-keeping and accounting documents, keeping books and journals, and conducting business.

Special attention will be devoted to the ability to prepare clearly written and concise papers containing the necessary subject matter, as well as book-keeping and accounting documents, and to express himself in a cultivated Russian style.

The enumeration and listing of property items will be studied by independent working out of exercises after the methods and technique of the work has been explained and demonstrated in actual practice by the teacher.

List of Subjects and Time devoted to each

	Designation of Subject	Number of Hours	
		Supply Clerks	Personnel Clerks
1.	Fundamentals of the Organization of Military Property	12	12
2.	General Conduct of Office Business	20	20
3.	The Routine of Dealing with Classified Matter	25	25
4.	Archive and Filing Practices	6	6
5.	Listing of Property and Typewriting	55	55
6.	Accounting of Personnel and Horses	---	47
7.	Book-Keeping and Accountability according to the Type of Supplies		
	a) Artillery and Technical Supplies	47	
	b) Automobile Supplies		
	c) Fuel and Lubricants		
	d) Food Supplies and Feed		
	e) Baggage Train and Clothing Supplies		
	TOTAL	165	165

REMARK. The various parts of Subject 7 are studied by clerks according to the type of supplies for which they are specialized.

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SUBJECT 1: Fundamentals of the Organization of Military Property

Exercise 1: The organization of military property in units of the regimental or

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(and below,
or battalion type). Rights and duties of personnel in charge of military property. The general procedure of requisitioning and issuing military property. Brief information concerning the organization of supplies.

Exercise 2. The purpose and tasks of military book-keeping and accounting. General rules for keeping the books, and for preparing and formulating the book-keeping documents. The classification of documents. Rules for correcting errors and false statements in books and accounting documents.

Exercise 3. Orders dealing with property (artillery supplies, technical property) and the method of preparing them.

SUBJECT 2: General Conduct of Office Business

Exercise 1: Official communications and their purpose. The duties of persons who have the right to correspond on official matters in the units of regimental or battalion type. Basic legal principles applying to the conduct of business in a military office. Organization of office business in military units of the regimental or battalion type. Types of blank forms, their preparation, storage, and use. Types of military official documents, the manner in which they must be organized, written up and reproduced. Control over the work with reproducing machines and typewriters. The storage of reproducing machines and typewriters.

Exercise 2. Organizing the reception of correspondence. Postal certificates. Types of books and journals for registration of incoming correspondence. The technique of receiving correspondence in a military units of the regimental or battalion type. Registering official papers and transmitting them for report and according to their purpose. Filling out official blank forms. General obligations incumbent upon persons who execute official documents. Time limits on official papers. Official rubber stamps, ^(and seals) and the authority to have them. Places for keeping rubber stamps and seals. Preparation of documents going to higher and to lower echelons.

Exercise 3. The methods of forwarding correspondence. The forms used for books and journals used to register outgoing correspondence. The use of envelopes. Addressing correspondence.

The procedure of forwarding letters by mail and by messenger. Record

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of actions taken. The conduct of business and the filing of papers. File references

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in books and journals. Control over the storage and protection of service documents. Giving out information and making copies of documents. Remarks placed on documents concerning information given and copies made. Preparing papers for filing.

SUBJECT 3: The Routine of Dealing with Classified Matter

Exercise 1: General information concerning secret correspondence and records. The responsibilities and duties of persons handling classified matter. Lists of classified documents. Forms used for the documents and for the books accounting for the documents. Rubber stamps and seals, and their purposes. Higher and lower classifications and the use of rubber stamps. The authority and rules for classifying documents and declassifying them. Method of forwarding and registering classified matter. Use of envelopes, use of clips and seals. Handling and storing classified material. Making lists of classified documents and file cards for the index. Rules for withdrawing documents from the files.

Exercise 2: The method of handling classified documents while working with them. The reproduction of classified documents. Methods of accounting for reproduction and dissemination of classified documents. The storage of classified documents.

Exercise 3: The procedure of giving out information concerning classified matter. Use of the telephone and telegraph. The nature of official business that may be handled over the telephone.

SUBJECT 4: Archive and Filing Practices

Exercise 1: General remarks concerning the establishment and maintenance of archives. Equipment and maintenance of the archives of a military unit of the regimental or battalion type. Forms of book-keeping on the contents of the archives. Records, labels, list, and file cards; their forms and purposes. Reception of material for storing in the unit's archives. Requirements concerning archive material when it is received and issued. Documentary entries relating to receipt of documents for the archives.

Exercise 2: Accounting for archive documents and their care in storage, methods of using them, and time limits upon their storage. The procedure of handing out archive documents and the preparation of the entries that have to be made. The destruction of archive documents when the time for keeping them has expired. Preparing records concerning the destruction of archive material.

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SUBJECT 5: Listing of Property and Type-Writing

Exercise 1. Approximate and simplified enumeration in whole and fractional numbers. Rules for rounding out figures.

The metrical system of measurements. Units of measurement for length, area, volume, weight. Formula for computing area, volume, weight. Computation in concrete numbers. Percentages.

Exercise 2. Work on office accounting. Addition, subtraction, multiplication, and division. Computing percentages on accounts.

Exercise 3. Work on the ~~writing~~ ^{computing} machine. The functioning of the computing machine. Addition, subtraction, division, and multiplication. Checking on the work of the computing machine.

Computing tables. The structure of computing tables and rules for using them.

Exercise 4. Familiarity with the structure of the typewriter, with its use, and with the rules for operating it.

SUBJECT 6: Accounting ~~of~~ ^{for} Personnel and Horses

Exercise 1. The regulations that affect the accounting for personnel. Duties and responsibilities of personnel in charge of the accounting for personnel, and methods of preparing an accurate account. An enumeration of the forms, books, and blanks used in the enumeration of personnel and accounting for it. Table of ~~periodic~~ reports to be made on the numerical strength and the ~~22~~ effective strength for combat.

Exercise 2. Accounting for personnel in the squad and in the platoon. The personnel roster of the squad and of the platoon; its form, method of preparation, and rules for keeping it. Evening check and roll call by the list.

Exercise 3. Accounting for personnel in the company (battery, squadron). The personnel roster, the company personnel roster, the daily return, its purpose, rules for preparing it and keeping it. Keeping the books. Roster of NCO's and ^{privates} enlisted men according to length of service, age, and military occupation specialty. Forms of accounting, their purpose and preparation. Storage of the documents.

Exercise 4. Accounting for personnel in the infantry (artillery) battalion. The personnel roster, the alphabetic record book, the personnel accounting book, the

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daily strength report. Accounting for NCO's and privates who are away from the unit according to age and time of service. Writing up the accounting documents and storing them. The different types of accountability, their purpose, mode of preparation and submission.

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Exercise 5. Personnel accounting at the level of the regimental ~~organization~~ type unit. The types of accounts, their purposes, and the methods of keeping them. Keeping personnel records for the officers of the unit. The officer's service record and the procedure of keeping it. Autobiography. Photo cards. Personal description. Attestations. Certificates bearing on promotion to the next higher military rank. List of attestations, certificates, and supplementary personnel files.

Exercise 6. Account of transfer personnel and attached personnel. Keeping the personnel records of civilian personnel. Making entries in the work records. The summarizing procedure of ~~checking~~ personnel data and presenting the results to a higher staff. Checking on the condition of personnel records in the subordinate units; making changes in the service record of privates and NCO's.

Exercise 7. Practice in preparing first drafts of orders for the regimental type of unit.

Exercise 8. Personnel accounting at the level of the division and above. Types of recording and accounting documents. Their purposes, establishment, and methods of keeping them. Checking on material submitted by the subordinate units. Rules and methods for the preparation of summary accounting documents and for presenting them to higher headquarters.

Exercise 9. Accounting for replacements who have arrived. Documents for the reception and transfer of replacements. The procedure of informing the source of replacements of their arrival. Account of disciplinary punishments and commendations at the companies, and at regimental and divisional headquarters.

Exercise 10. Accounting for horses kept at the regiments and the latter's subordinate units. Types of accounting documents and method of keeping them. Stable records.

SUBJECT 7:

~~Subject 7:~~ Book-Keeping and Accounting according to the Type of Supplies

a) ARTILLERY AND TECHNICAL SUPPLIES

Exercise 1. Organization and system of accounting. Characteristics of the ac-

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counting documents and method of preparing them.

Exercise 2. Accounting at the level of the company (battery), infantry (artillery) and battalion, regimental artillery supply depot.

Exercise 3. Accounts for ammunition on hand and in movement, methods of preparing these accounts and submitting them.

Exercise 4. Accountability for artillery remounts.

Exercise 5. Accountability for the presence, condition, and movements of artillery property.

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Exercise 6. Special characteristics of artillery property ^{accounts} ~~maintaining~~ for an army in the field (in wartime).

Exercise 7. Accounts and accountability at the divisional level. Organization and system of accounts. The objects of the accounting. Basic accounting documents and and basic accounting books; methods of keeping them.

Exercise 8. Types of accountability, methods of establishing and presenting them. Listing of combat losses and methods of accounting for them. Special characteristics of accounting activities for an army in the field (in wartime).

b) AUTOMOBILE SUPPLIES

Exercise 1. Material accounting for motor vehicle property. Basic documents for incoming and outgoing material. Bills of lading, invoices, receiving documents, packing lists, receiving and issuing records, powers of attorney.

Exercise 2. Accounting for quantity and quality. Card-index accounting, methods of making out and storing the cards.

Exercise 3. Books of individual accounting for motor vehicles, journal to be kept by the technical check point, reception-issue records for motor vehicles in repairs and for transfer to another unit, driver's receipt for a motor vehicle.

Exercise 4. Books to keep account of damage and breakage; method of filling out the forms and keeping the books.

Journals to show the presence and technical condition of motor vehicles, combat report, bill of lading and lists of contents or parts; the manner of keeping, writing up, and filling out the foregoing journals.

~~SECRET~~

c) FUEL AND LUBRICANTS

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Exercise 1. The methods of preparing reports on requirements for fuel and lubricants. Documents required for the issue of fuel and lubricants (issue of bills of lading, transport permits) and the methods of entering these documents on the account books.

Exercise 2. Enumeration of the documents made out to keep account of fuel and lubricants, packing materials, and filling equipment.

Exercise 3. Dividing up the property into categories according to its technical condition.

Exercise 4. Trip tickets. Method of filling them out and completing them; their destruction and storage as documents required for strict accounting.

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Exercise 5. Books to account for the work done by the motor vehicles and for the expenditure of fuel and lubricants; their purpose; and how to fill them out and add up the monthly totals. The books to account for fuel and lubricant materials and property; their purpose, and methods of filling them out. Journals concerning the ~~income~~ expenditure of fuel and lubricant materials; how to keep them and add them up and turn them in. Reports on proper and used up oil, and the method of preparing them.

Exercise 6. Detail for issue and reception of fuel and lubricants. The details working period. Bill of lading for fuel and lubricant materials and property.

Authorization
~~Requirements~~ to receive fuel and lubricant materials and property; how to draw it up; requirement to keep stubs; how to fill them out.

Exercise 7. Standards of natural loss of fuel and lubricants in reception, storage, and issue, and methods of listing the losses. Methods of listing fuel and lubricant materials and property on the basis of the inspection records. Occasions for requisitioning inspection records. Documents to report excessive spoiling or loss of materials. The issue of a certificate for fuel and lubricants, and the drawing of allowances on that basis.

Exercise 8. Enumeration of the documents on which the accounting for fuel and lubricant materials and property is based. Monthly accounting for movements of fuel and lubricant materials; reports on property transfers; and the method of preparing these documents.

Report on the number of vehicles present and on the quantity of refuel-

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ing materials required. Table of regular periodic reports that have to be submitted in peace times and in time of war.

c) **FOOD SUPPLIES AND FEED**

Exercise 1. The conditions and regulations that govern the preparation of records and accounting for food supplies (and feed), and for the materiel used in handling them, and the blank forms used for systematized accounting. Rules for preparing and drawing up the documentation required for incoming and outgoing supplies and property.

Exercise 2. Accounting at food-feed supply storerooms. Making out the papers required for reception and issue of food-feed supplies, packing material, and other equipment required for the operation of these storerooms. The procedure of making the daily reports, and the disposal made of these documents by the warehouse in charge. Accounting by the kitchens and dininghalls. Record of the number of eaters. The check-sheet and rules for keeping it. Accounting for dishes and other equipment in the kitchen and dining room.

Exercise 3. Accounting for the regimental-type bakery. Keeping records on flour received for the bakery. Accounting for the flour and the bread. Losses of weight in baking. Norms for the loss of weight in baking. Blank forms for the accounting, and the method of filling them out. Checking on bakery accounts.

Exercise 4. Records to be prepared concerning the reception of food supplies, packing materials, and other food-supply property from warehouses of the Ministry of War, from the contractor's supply bases, out of the secondary supply stores of military units, and obtained from local sources. Records of the issue of food supplies: to the kitchen and to individual members of the military personnel; while on the march; to a military unit; from a warehouse; in cases of further processing or of spoiling; in cases of accidental or natural losses.

Exercise 5. Accounting for packing, dishes, and other equipment. Entering the transactions of receipt and expenditure on the account books. The system of circulation of documents.

Exercise 6. Accounting of personnel and horses present for supplies. Keeping a daily record of personnel and horses present for food supplies. The procedure

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of carrying for rations and dropping from rations. Certification for rations of food and forage; its purpose; rules for filling out the certificates; and rules for issuing the rations. Keeping account of blank forms for ration accounting.

Exercise 7: Special characteristics of accounting for rations and forage: in units below the regiment on detached duty away from the regiment; on troop trains; in troop units of an army in the field.

Exercise 8. Food-Supply and forage accounting at the level of the division and above. Food-supply and forage accounting documents at the level of the division and above. Records to show the quantities of supplies ~~available~~ ^{available} and the requirements of the troop units. Supplies on hand and in course of transfer at the divisional storage depot. Types of accountability and table of to show the regular periodic reports to be made.

Exercise 9. How to prepare an accounting report on food supplies, forage and packing materials. How to prepare the regular reports. Keeping accounts in the event of ^{divisional} reorganization or departure of the unit. The accounting responsibilities for food-supplies and forage, and the procedure of preparing and submitting these accounts.

Exercise 10. Taking inventory of food supplies and forage, and of the corresponding and packing materials and other property; the purpose of the inventories, the manner in which they are organized and conducted. Preparation of the inventory documents and the manner in which they are submitted.

a) CLOTHING SUPPLIES

Exercise 1. Documents, books, and index-cards used in the accounting for clothing, baggage-train equipment and furniture; brief characteristics of these types of record, and their uses. Preparation and formulation of receipt and issue documents.

Exercise 2. Proper accounting at the Quartermaster unit and at the warehouse. Documents recording receipt (arrival) of property. Entering the arrival of incoming property on the accounting books as they are being handled or stored at the troop unit (regimental type).

Exercise 3. Making out the documents required for issuing property: issue to the sub-units of the regiment; distribution to individuals of the regimental personnel for their own personal use; transfer of property to another unit; issue at the warehouse; shortages and losses due to accident; property lost by individuals of the unit.

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Circulation of documents. Checking on the completeness of sets of property.

Exercise 4. Record of individual pieces of baggage-train property. Accounting for baggage-train property sent away for repairs or cleaning. The procedure for the warehouse in charge to pass on documents for the files of the quartermaster unit, supply property.

Exercise 5. Special characteristics of accounting for emergency-supplies ~~xxxxxxxxxxxx~~ copy of the individual clothing and equipment. The ~~clothing certificate exists for purpose xxxxxxxx~~ record, and its purpose. Accounting for personal property received for storage from NCO's or private soldiers.

Property accounting in units below the level of the regiment. The procedure, for the small units, in requisitioning and receiving property, issuing it to members of the personnel, and transferring it from one ~~xxx~~ unit to another. Documents to be prepared for turning in property to the warehouse.

Exercise 6. Accounts of clothing property on the company books, on the individual clothing and equipment record, and in the personal identification booklet of the individual soldier. Preparing lists of property lost with men going into other units. Special characteristics of accounting for property issued to men on recall for refresher training ("sborny"). The procedure of checking property records of the small units against the records of the quartermaster administrative units.

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Exercise 7. Accounting at the shops. Accounting for the repair and maintenance material, for the repaired property, fixed material and equipment. Papers to be made out when receiving property for repair and when issuing the repair ^{ed} property.

Exercise 8. Special characteristics of accounting for property of the troop units of an army in the field. Accounting for clothing property in units of the divisional type. Documents required for the accounting and issue of property. Accounting for clothing property on hand or in course of transfer at the regiments and at the warehouse of the division.

Exercise 9. Types of accountability and table of regular periodic reports. The procedure for writing up and submitting accounts of clothing property, and reports on requirements as to clothing property. Accounting in the case of reorganization or transfer of a military unit to another location. Clothing property accounting for the division; procedure for writing it up and submitting it.

Exercise 10. Taking inventory of individual and clothing property; the purpose, and organization of the inventories, and the method of conducting them. Documentary

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formulation of the results of the inventories, and the procedure of submitting the inventory data.

QUARTERMASTERS

Purpose of Training. 1. To teach the organization of company (battalion) property and the duties of the company (battalion) quartermaster; standards of the daily food rations for personnel; the organization of the supply of meals at permanent barracks and in the field; standards for supplies of clothing and forage.

2. ~~TEM~~ To develop the requisite habits as regards use, repairs, storage, and accounting of proper in the minor units.

INDICATIONS AS TO METHOD

The lessons dealing with the company (battalion) food, forage, and clothing supplies are conducted in the form of discussions, basing the discussions on the property supplies of the regiment.

The processes of accounting for property in the subordinate units will be taught by means of practical preparation and writing up of relevant documents.

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List of Subjects and Time allotted to each

Designation of Subject	Number of Hours
1. General Information on the Subject of Troop Property	2
2. Property Organization in the Company (Battalion)	4
3. Organization for Feeding Personnel at Barracks	4
4. Organization for Feeding Personnel in the Field	12
5. Food Supplies for the Horses	4
6. Food Supplies for Small Units on Detached Duty	6
7. Food Supplies for Troops on the March	2
8. The Procedure of Obtaining Clothing Supplies for the Small Units	8
9. Furnishing Clothing Supplies to the Individual Soldier.....	16
10. Storage of Clothing Property in the Small Units	12
11. Protection of Clothing Property	14

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List of Subjects and Time allotted to each

Designation of Subject	Number of Hours
12. Repairs of Clothing Property	6
13. Bathing and Laundry Services	3
14. Organization of Property Accounting in Small Units	2
15. Accounting for Clothing Property	32
16. Accounting for Food and Forage Supplies of a Unit on Detached Duty	6
17. Accounting and Maintenance of Ammunition, Ammunition, and Technical Supplies	32
TOTAL	165

SUBJECT 1: General Information on the Subject of Troop Property~~Excluded~~

~~Excluded~~ General notions on the subject of troop property. The tasks connected with troop property. The organization and basic functions of the property agencies of the regiment.

~~Excluded~~SUBJECT 2: Property Organization in the Company (Battalion)

The tasks and functions of company property. The management of company property. The rights, duties, and responsibilities, with respect to property, incumbent upon the following: 1st Sergeant, Assistant Platoon Commander, Squad Commander, Quartermaster. The procedure to be adopted by the following to give or receive duty assignments relating to company property: 1st Sergeant, Assistant Platoon Commander, Quartermaster.

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SUBJECT 3: Organization for Feeding Personnel at Barracks

Daily ration norms for NCO's and private soldiers. The procedure of carrying for rations and dropping from rations. Procedure of preparing meals and issuing them. Preparing the dining hall for the meal. The procedure of bringing food into the dining hall, receiving it there, and of removing it from the dining hall. Providing warm food for personnel on daily detail. The procedure of making a statement of quantities issued.

SUBJECT 4: Organization for Feeding Personnel in the Field

Organizing the food supply squad, and the duties of the personnel on duty.

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Organization of the FKHD (punkt khozayavnstvennogo dovol'stviya - food supply point ?) The bringing up and storing of food supplies. The preparation of meals in mobile kitchens. Means and procedure of furnishing cooked meals and dry foods to advanced positions under various types of combat conditions. The procedure of issuing certain meals and dry foods. Preparing meals from concentrated and ordinary food products, by the soldiers themselves, in mess kits and buckets. The emergency food supply carried by the soldier, its purpose, and the procedure of issuing it.

SUBJECT 5: FEED SUPPLIES FOR THE HORSES

Feed rations. The procedure of carrying horses for rations and dropping them from rations. Obtaining forage from the regimental store house and issuing it to the ~~unit's own storage place for~~ feeds and forage. Time schedule and procedure for issuing feed to the horses. Rules for feeding animals. The stable sergeant's duties with respect to the feeding of the horses.

SUBJECT 6: Food Supplies for Small Units on Detached Duty

Obtaining food supplies and forage from the regimental food storage and delivering it to the small unit. Standards and procedure for placing food supplies and forage on wagons and mobile kitchens. Releasing food products to the kitchen. Supplying cooked foods, bread, and sugar. Issuing forage to the horses.

SUBJECT 7: Food Supplies for Troops on the March

Issuing food on a troop train. Supplying food for consumption en route for headquarters and individual soldiers. Converted rations.

Page 160:SUBJECT 8: The Procedure of Obtaining Clothing Supplies for the Small Units

The procedure for small units to obtain clothing supplies from the regimental warehouse. Checking quantity and quality of the property received. Delivering the property to the small unit. The reception of property going to NCO's and private soldiers coming in from another regiment or transferred from another small unit. The procedure of issuing property from the regimental warehouse to one of the small units.

SUBJECT 9: Furnishing Clothing Supplies to the Individual Soldier

Exercise 1. The private soldier's and the NCO's right to receive clothing property. Priorities and time schedules for issuing the property.

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Exercise 2. Preparing uniforms, footwear, and personal equipment for issue. Marking ^{assigning} the articles and ~~issuing~~ them to the individual soldier or NCO.

Exercise 3. Furnishing clothing property to men called in by the draft. Issuing clothing property to soldiers and NCO's transferred down from the regiment, transferred to another small unit, or going out on a long-term furlough.

Exercise 4. Procedure to provide clothing property in cases where the article is worn out before its proper time, or else is torn or otherwise spoiled. How to provide the small unit with bed-clothing, special clothing outfits, and sport wear.

SUBJECT 10: Storage of Clothing Property in the Small Units

Exercise 1. Structure, equipment, and maintenance of the store-room. Placing clothing property in storage, and putting it away. Care of the property during the storing process. Measures to ^{be} taken against ^(damaging influences) ~~rodents~~ (rodents, moths, etc.).

Exercise 2. Procedure for receiving in storage personal belongings of private soldiers or NCO's who are absent on a short furlough, or on outside duty, or who have been sent to a military hospital or to the guardhouse. Procedure for returning such personal property.

SUBJECT 11: Protection of Clothing Property

Exercise 1. Protection of clothing property is one of the military duties of every member of the service. Rules for wearing uniforms and personal equipment. Rules for

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putting on foot cloths. How to take care of the personal outfittings: cleaning, airing, greasing or oiling, drying.

Exercise 2. Using the kit bag to carry food, and food-supply articles and articles of daily use. Use of the poncho (shelter half).

Exercise 3. Procedures for inspecting property in use. The duties of the NCO and the private soldier in the matter of protecting clothing property.

Exercise 4. Putting up a tent for use on the march, and for use in camp. The care and maintenance of tents.

SUBJECT 12: Repairs of Clothing Property

The construction, equipment, and maintenance of a small ^{clothing} repair shop in the subordinate units. Supplying the requisite repair materials. Having minor repairs made by the soldiers themselves. Procedure for giving things into repair at the

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regimental clothing repair shop, and for receiving them back from repairs.

SUBJECT 13: Bathing and Laundry Services

How to organize the bathing and laundry service. Time schedules and priorities for taking a bath. Procedure for changing into clean underwear. Standards for issuing soap, and procedure for obtaining it. How to arrange for the washing of ~~used~~ handkerchiefs, ~~detachable collar linings~~, and foot cloths by the soldiers themselves.

SUBJECT 14: Organization of the Property Accounting in Small Units

Requirements to be made of property accounting in the small units. Special characteristics of the accounting documents used in small units. Duties of the Platoon Sergeant and the Quartermaster (Supply Sergeant) with respect to the accounting for property in the small units.

SUBJECT 15: Accounting for Clothing Property

Exercise 1: Preparing and drawing up documents to enable the small unit to obtain clothing property from the regimental warehouse, and for issuing the property to private soldiers and NCO's. Noting down the received and issued clothing property in the company's clothing account book, in the soldier's personal identification book-
(individual records for
let, and in the index-card ~~fitment~~ each soldier. Special characteristics of the accounting for clothes issued to persons called in for the draft.

Exercise 2: Preparing and drawing up the documents required when a small unit turns in clothing property to the regimental warehouse. Entering the surrendered property on the company's property accounting book.

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Exercise 3: Accounting for clothing property that belongs to NCO's and private soldiers who are away from the regiment, or arrive from another regiment, or are being transferred from one unit to another within the same regiment.

Exercise 4: Time schedules and procedures for the small unit to submit its accounting documents to the ~~supply section of the staff.~~

SUBJECT 16: Accounting for the Food and Forage Supplies of a Unit on Detached Duty

Preparing and writing up documents to obtain food and forage supplies from the regimental warehouse, and documents concerning issue of food supplies to

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the kitchen and of forage for the horses.

SUBJECT 17: Accounting and Maintenance of Armament, Ammunition and Technical Supplies

Exercise 1. The procedure for obtaining, storing, and protecting armament, ammunition, and technical supplies. Rules for the transport of ammunition.

Exercise 2. Rules for care of the weapons: taking care of it while living in barracks, in camp, and on the march. Procedures for inspection and control over maintenance of the weapon at the company level. Categories and sets of technical supplies property. Keeping ~~weapons~~ portable entrenching equipment in a condition of readiness. Repairs of armament and technical supplies.

Exercise 3. Accounting for quantity and quality of armament and technical equipment in the sub-units of the regiment.

Exercise 4. The accounting documents and the procedure for writing them up. Accounting for ammunition at the company level. The procedure for issuing and accounting for ammunition issued to the guards (sentries). Issuing armament and technical supplies for use. The documentation required when weapons and technical supplies are ~~given~~ turned in for repairs.

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PROGRAM FOR PERFECTING THE SKILLS OF THE DRIVERS OF COMBAT, ADMINISTRATIVE, AND TRANSPORT AUTOMOBILES AND TRACTORS

- Purpose of Training.
1. To perfect the soldier's knowledge concerning the structure of the automobile (tractor).
 2. To develop strongly established habits concerning the technical servicing of automobiles (tractors); to teach the soldier to notice and remove any disorders of the automobile (tractor) under combat conditions.
 3. To achieve absolute technical mastery in driving the automobile (tractor) under any conditions whatsoever.

INDICATIONS AS TO METHOD

1. Exercises for the specialist training are for the most part conducted by practical methods, directly on the automobile (tractor), using technically equipped class rooms, parks, and shops.

The exercises must include the demonstration and study of the func-

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tioning of a properly regulated assembly (mechanism, device) that is in perfect condition, and an opportunity for the soldier himself to handle and operate the device in question, by way of illustration. After that the student must be trained to form habits for making an inspection and check of the technical condition of the automobile (tractor), discovering defects in the functioning of the various assemblies, mechanisms, and devices, ^(and) removing any irregularity or defect he may discover.

Special attention should be devoted to study of the material, and to rules for operating those makes of automobiles (tractors) which enter into the equipment of their unit, division, etc. At the same time a study must be made ^(also) of the special structural characteristics and operation of other Russian makes of automobiles (tractors).

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2. Practical work with the material is done on automobiles (tractors) actually in use; and in this connection care must be taken to enable all of the students to work at the same time. Practical work must be done according to the technological charts.

The development of proper habits in servicing and repairing automobiles (tractors) is effected by using automobiles (tractors) that in view of the season of the year, or in view of the period of time for which they have been in use, require one type or another of servicing or repairs. With this purpose in the scheduling of this work, it must be coordinated with the plan of operations.

3. The teaching of traffic rules is conducted in specially equipped class rooms, on sand boxes, and in actual practice out on the terrain (on roads and in inhabited localities).

The class rooms and other localities where the exercises are conducted must be equipped with road signs, ~~traffic lights~~, ~~markers~~, and so forth.

List of Subjects and Time allotted to each

Designation of Subject	Number of Hours	
	Drivers of Com- bat, Admin. and Veh. (Tractors)	Drivers of Transport Vehicles
<i>Within Period:</i>		
1. General Structure of the Automobile (Tractor)	2	2
2. The Motor	18	12
3. The Feed System	12	8
4. The Ignition System and the Electrical Equipment	20	15

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List of Subjects and Time allotted to each (cont'd)

Designation of Subject	Number of Hours	
	Drivers of Com- bat and Admin. Vehicles (Tract).	Drivers of Trans- port Vehicles
5. Structure and Functioning of the Start- ing Devices	2	2
6. Study of the Structure and Care of the Power Transmission	4	4
7. Running Gear and Steering Mechanism ...	20	20
8. Operating the Vehicle	16	14
9. Preparing the Automobile (Tractor) for Spring and Summer Operation	6	6
10. Technical Servicing	30	30
11. Fuels and Lubricants	2	2
12. Driving Automobiles and Tractors	8	--

Summer Period

TOTAL 140

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13. Special Structural Characteristics of Terrain-Going Vehicles (GAZ-63, ZIS-151 and the New Types of Tractors	36	36
14. Preparing Automobiles (Tractors) for Autumn-Winter Operation	6	6
15. Traffic Rules for Military Auto-Roads, and the Corresponding Rates of Speed	4	4
16. Preparation for Use of New Automobiles (Trac- tors) and Old Vehicles Returned from Major Repairs	2	2
17. The Regulating Work to be Done in Connection with Technical Servicing No. 1, 2, and 3	12	12
	TOTAL 60	60

Combined Total: 200

175

SUBJECT 1: General Structure of the Automobiles (Tractor)

Classification of automobiles and tractors according to type, use, and road or terrain travel capacity. The operating and technical characteristics of Russian-made automobiles and tractors. Types of special equipment for automobiles and tractors. Rules for the use and care of this special equipment. Automobile and tractor equipment for the transportation of troops, freights, and artillery systems.

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SUBJECT 2: The Motor

Exercise 1. The cycles of the internal combustion motor. The structure of the multiple-cylinder four-stroke gasoline motor. Purpose, structure, and functioning of the crankgear mechanism. Construction data for the motor: the number of cylinders; the diameter of the cylinder; the piston stroke; the operating volume of all the cylinders; the degree of compression; the maximum power; and the number of turns at maximum power. Importance and measurement of the before-mentioned characteristics.

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Various types of disorder; methods of discovering and removing them.

Exercise 2. Purpose, structure, and functioning of the circulating mechanism. The advantages and disadvantages of high and low position of the valves. Adjustment of the distributing shaft and of the distributing pistons. Moment of opening and closing the valves. The most commonly encountered irregularities; their discovery and elimination. Clearances between valve stems and plungers; method of checking the clearances.

Exercise 3. The system of water-cooling with thermo-syphon and forced circulation. Mixed systems of cooling. The volume of the cooling system. The structure of the radiator, ventilator, centrifugal pump, and thermostat. Disorders in the system of cooling. The consequences of overheating and overcooling the motor. Care of the cooling system.

Exercise 4. The importance of the lubricating system. Lubrication under pressure, by spraying, and combined systems. The consequences of insufficient and excessive lubrication. The devices of the lubricating system, their purpose and functioning. The most frequently encountered disorders; methods for discovering and eliminating them. Care of the lubricating system.

SUBJECT 3:~~Exercise 1.~~ The Feed System

Exercise 1. Purpose and structure of the feed system of the motor. The devices of the feed system; their purpose, structure, and functioning. High-pressure fuel pump. The mechanism for regulating the fuel supply; mechanism for pumping by hand. The jet sprayer; the conditions under which it functions.

Exercise 2. Supplementary structures of the carburetor. Servicing the feed system of the motor. The most commonly encountered disorders; their discovery and correction. Regulating the devices of the feed system. Control and care of the feed

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system.

SUBJECT 4: The Ignition System and the Electrical EquipmentExercise 1. The structure and principle of action of the accumulator battery.

Composition and preparation of the electrolyte. Rules for charging a battery and for checking upon its charge. The generator; its structure and principle of action.

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Regulating the force and voltage of the generator current. The most commonly encountered disorders of a battery, generator, or relay-generator; methods of discovering and correcting the disorders.

Exercise 2. Ignition of the working mixture. Ignition devices; their purpose, structure, and mode of functioning. Advancing the spark, and the vacuum regulator for advancing the spark. Diagram to show the principles applied in the ignition system. The magneto; its purpose, structure, and mode of functioning. The equipment for obtaining ignition from the magneto. The most commonly encountered disorders; methods for discovering and correcting them. Care of the ignition system.Exercise 3. Purpose and structure of the starter; its disorders, and methods of correcting them. Care of the starter. Lighting and signal devices. Control and measurement devices. The disorders most commonly encountered in them; the means of discovering and correcting them. Care of the lighting and signal devices, and of the control and measurement instruments.SUBJECT 5: Structure and Functioning of the Starting Devices

Technical characteristics, purpose, structure, and mode of functioning of the various starting devices. How to regulate the starting devices. Rules for care and keeping. The most commonly encountered disorders, and methods of correcting them.

SUBJECT 6: Study of the Structure and Care of the Power TransmissionExercise 1. Purpose and general structure of the power transmission. Purpose, structure, and mode of functioning of the coupling, transmission case, distributor case, reduction gear, Cardan shaft, differential, and main drive gear of the automobile.Exercise 2. Purpose, structure, and mode of functioning of the principal friction clutch, shift gear and main drive gear cases, flange friction clutch and flange transmission of the tractor. The front bridge. The most commonly encounteredACSI FORM
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disorders; methods for detecting and correcting them. Servicing and care of the power transmission.

SUBJECT 7: Running Gear and Steering Mechanism

Exercise 1. Structure of the frame, axles, and suspension. Shock absorbers. Wheels. Regulating the angle of convergence of the wheels. Regulating the degree of rigidity of the shock absorber of the spring suspension; the running gear of the tractor. Automobiles without frame. Independence of the suspension of the front wheels. The suspension of the leading truck of a three-axled automobile.

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Exercise 2. The tires. The general structure of the pneumatic tire. The procedure of changing tires. Care of the tires. Repairs on inner tubes and casings under field conditions.

Exercise 3. The structure of the steering mechanism. Servicing and regulation. Detection of disorders, and methods of correcting them.

Exercise 4. Purpose, structure, and mode of functioning of the brakes. Rules for operating, servicing, and regulating the brakes.

SUBJECT 8: Operating the Vehicle.

Exercise 1. The procedure for receiving, surrendering, and turning it over to a troop unit. The log for an automobile (tractor) and the numerical markings. Issue of a certificate entitling the holder to drive an automobile (tractor).

Exercise 2. The trip ticket and its purpose. The procedure for obtaining, filling out, and turning in the trip ticket. Recording and accountability for trip tickets. Practical method for filling out the trip ticket. Record of the road mileage of the automobile (tractor). Measures for economizing fuel and lubricants. Planning the operation of automobiles and tractors.

Motor

Exercise 3. Parks and their uses. Types of parks. Structure of the park. Field parks and their equipment. Placing the automobiles (tractors) in a park. The internal regulations of a park. Measures of fire prevention and protection at the park.

Exercise 4. Preparing the automobile (tractor) for dead storage. The Procedure of storing the automobile (tractor) and removing its equipment. Servicing automobiles in dead storage and checking on their technical condition. Taking an automobile (tractor) out of dead storage. Types of documents used for automobiles

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(tractors) in dead storage and the method of preparing them.

SUBJECT 9: Preparing the Automobile (Tractor) for Spring and Summer Operation

Exercise 1. Practical work in preparing the cooling, lubrication, and feed systems, and the accumulator batteries for summer operation.

Exercise 2. Practical work in taking care of the rubber equipment of the vehicle, the track assembly, the lubrication, feed, and cooling system, and the brakes.

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SUBJECT 10: Technical Servicing

Exercise 1. The purpose of the servicing. Inspection to check on the vehicle before it leaves the park. Checking the vehicle en route (during halts and at stop-overs). Daily technical servicing. Technical servicings No. 1, 2, and 3. Norms of time to be spent on the work of servicing. The extent of the work, and methods of accomplishing it.

Exercise 2. Practical work on technical servicings No. 1, 2, and 3.

Exercise 3. Special characteristics of the operation of a new automobile (tractor) or one that has just undergone major repairs. Special characteristics of the trial runs of a new automobile (tractor). Inspections during the period of the trial run, change of oil, cleaning the crank case and filter.

SUBJECT 11: Fuels and Lubricants

Exercise 1. Technical and operational requirements to be made of fuels. Standards of expenditure of fuel on various makes of automobiles and tractors. The different types of automobile and tractor fuel.

Exercise 2. The requirements to be made of lubricants. Motor oils and solid lubricants. Different types of oils and their properties. Standards for the expenditure of oil. Signs that indicate the lubricant is not fit for use.

SUBJECT 12: Driving Automobiles and Tractors

Exercise 1. Practice in driving an automobile (tractor). Starting and shifting across intersections gears. Movement ~~smoothly~~ and on curves. Movement over slippery roads, smooth and over moist, with snow. Braking and halting. Rules for overcoming steep grades and descents, and movement across bridges. Towing another vehicle.

Exercise 2. Traffic rules for automobiles and tractors. Organizing the regulation of traffic. Road markers and signposts. Driving an automobile (tractor) over mountain

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roads. Rules for driving an automobile (tractor) in ~~column~~ column. Driving an automobile over roadless terrain. Driving an automobile (tractor) at night.

SUBJECT 13: Special Structural Characteristics of Terrain-Going Vehicles (G12-63, ZIS-151) and the New Types of Tractors

Exercise 1. Tactico-technical characteristics of the automobiles and tractors.

Page 170: General characteristics: motors, power transmission, running gear, body, steering mechanisms, electrical equipment. Operating characteristics of automobiles and tractors.

Exercise 2. Special characteristics of the structure of the motor, cooling system, lubrication and feed system; ignition system and electrical equipment. Structure of the power transmission. The distributor box, the Cardan transmission. The reduction gear. The main transmission and the differential. The principal friction gear, the flange friction gear and the flange transmission.

Exercise 3. Distinguishing characteristics of the running gear of automobiles and tractors: the rear and forward bridges, the suspension, the shock absorbers, wheels and tires; the steering mechanisms: the steering gear, foot brake and hand brake. The structure of the hydraulic gear. Regulating the brakes; detection and correction of disorders. Special equipment.

SUBJECT 14: Preparing Automobiles (Tractors) for Autumn-Winter Operation

(for autumn-winter operation)

Exercise 1. Preparation of the following: cooling, lubricating, and the accumulator battery. Preparing the equipment for heating, warming-up, and starting the motor, digging tools, and anti-skid equipment. Anti-freeze liquids, their purpose and use.

Exercise 2. Practical exercises in preparing the automobile(tractor) for autumn-winter operation.

SUBJECT 15: Traffic Rules for Military Auto-Roads, and the Corresponding Rates of Speed

Exercise 1. Traffic rules governing the movement of individual automobiles and automobiles in a column on military auto-roads. Duties of the driver in observing the traffic rules. Measures for suppressing violations of traffic rules on the roads. Special rules of movement carrying personnel or dangerous loads.

Exercise 2. Traffic regulation. Signals for regulating traffic in daytime and

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at night; their purpose. Traffic regulating agencies. Special characteristics of traffic regulation at intersections, road forks, bridges, water-crossings, and in inhabited localities. Compliance with traffic regulation signals.

SUBJECT 16: Preparation for Use of New Automobiles (Tractors) and Old Vehicles Returned from Major Repairs

Receiving an automobile (tractor) from major repairs. Trial runs:

regime of operation, time allotted for the trial run. Standards for the expendi-

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ture of fuel and lubricants. Care and servicing of the vehicle.

SUBJECT 17: The Regulating Work to be Done with in Connection with Technical Servicing No. 1, 2, and 3.

Exercise 1. The purpose and procedure of regulating the mechanisms of the automobile (tractor). The extent of the regulating work done in connection with Technical Servicing No. 1, 2, and 3. Tools and devices used in the work of regulating.

Exercise 2. Regulating the mechanisms of the Automobile (tractor) in connection with Servicing No. 1, 2, and 3.

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